UNIVERSITY OF THE PHILIPPINES
VISAYAS

CATALOGUE OF ACADEMIC PROGRAMS



2013

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The University of the Philippines Visayas is one of constituent universities of the UP System. True to its mandate, it continues to lead the way in the field of fisheries and aquatic sciences in the Visayas region and the country.

As it strives to fulfill the vision of becoming a research and public service university, UPV needs to strengthen and expand the existing programs and at the same time develop and institute new programs. The university is also facing the challenges of the educational reforms being undertaken in the country today, specifically the K +12 program of the government and the ASEAN integration scheduled in 2015.

This catalog provides information on the different undergraduate and graduate programs offered by the five colleges of UPV. This provides relevant, updated information on academic matters starting from student recruitment until graduation. Information on support services and other university matters are also included.

UPV stands by its commitment to the pursuit of academic excellence, human resource development and promotion of culture and the arts as it evolves into a true research and public service university.

Rommel A. Espinosa

ROMMEL A. ESPINOSA

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BRIEF HISTORY

During the term of UP President Onofre D. Corpus in 1975, an interdisciplinary team within the University conceived of an autonomous unit which would become the country's premier institution for fisheries and marine science education and research. Its establishment was embodied in the Philippine Five-Year Development Plan of 1978-1982, which also provided that Region VI would be the site of this new unit. On May 31, 1979 the Board of Regents (BOR) during its 114th meeting approved the establishment of an autonomous University of the Philippines in the Visayas (UPV). Executive Order No. 628 issued by President Ferdinand Marcos on October 30, 1980 operationalized UPV, with its main campus in Miagao, and with the College of Fisheries as its flagship college.

Originally, UPV consisted of only two colleges - the College of Fisheries and Ocean Sciences (CFOS), which was originally named as College of Fisheries (CF) and the College of Arts and Sciences (CAS), formerly UP College Iloilo. Then it grew into a constituent university with five colleges and a school in four campuses - Miagao, Iloilo City, Cebu City, and Tacloban City. The additional colleges and school are the College of Management (CM), formerly the School of Development Management (SDM); UP Cebu College, UP Tacloban College, and the School of Technology (SOTECH), formerly the School of Technology and Environmental Resources (STER).

The Board of Regents established the Graduate School in 1984. It was phased out in 1991 and become the Graduate Program Coordinating office (GPCO). It was renamed Graduate Program Office (GPO) in 1995. Its main function is to monitor and standardize the graduate program offerings of the colleges and school of UPV.

The main campus of UPV is in Miagao located about 41 kilometers from Iloilo City. It is built in a 1,294-hectare area of rolling hills and lush greenery with a spectacular view of the sea on one side of the campus and the distant mountains on the other. It covers twelve barangays and is one of the biggest in the country today.

The development of the site and construction of facilities began in September 1981, made possible through the Sixth Educational Loan of the Philippine Government approved by the World Bank. The loan proceeds of about $17.63 million were used for site acquisition, construction of buildings, procurement of equipment, and the transfer of the CF personnel and other property from Diliman to Miagao.

Today, a two-lane concrete road on the campus connects the wide expanse of fields, beaches, and forest hills with modern laboratory complexes, lecture and audio-visual halls, administration offices, library, museum, infirmary, student dormitories, faculty and staff houses and apartments, all providing a fascinating contrast to the rural setting.

The transfer of CFOS to the Miagao campus in 1988 was spearheaded by Chancellor Rogelio O. Juliano and Dean Efren Ed C. Flores. In June 1990 Chancellor Francisco Nemenzo effected the transfer of the CAS Division of Humanities and Division of Social Sciences. The School of Technology followed soon after. In May 1993, the transfer of the Division of Physical Sciences and Mathematics and the Division of Biological Sciences along with the Office of the Dean completed the transfer of the College of Arts and Sciences.

Two degree-granting units remain on the Iloilo City Campus. They are the College of Management and the CAS Division of Professional Education which maintains the UP High School in Iloilo. Some units have remained on the Iloilo City campus: **1)** the Center for West Visayan Studies (CWVS), **2)** the Office of Continuing Education and Pahinungod (OCEP); **3)** the Sentro ng Wikang Filipino (SWF); **4)** the Graduate Program Office (GPO); **5)** the Language Program; and **6)** the Gender and Development Program Office.

THE UPV MANDATE AND PROGRAM GOALS

On August 22, 2007, the UP Board of Regents approved the change of the official name of UPV from U.P. in the Visayas to U.P. Visayas and from University of the Philippines in the Visayas to University of the Philippines Visayas.

On September 24, 2010, the BOR approved the proposal to elevate UP Cebu College into an autonomous unit under the Office of the President. Preparations for the full separation of UP Cebu from UP Visayas was completed in December 2010.

UPV continues to pursue its mandate as the national center of excellence for fisheries and aquatic sciences with the mission to help promote and accelerate the development of the region and of the country.

Its programs have the following thrusts: to maintain the standards of academic excellence and promote leadership in fisheries and marine sciences; to expand opportunities for liberal, professional, and technical education in the region, particularly among the rural folk; to contribute to the development of the region through relevant instructional, research and extension programs in management, graduate education, engineering, health sciences and related fields, with academic programs envisioned to meet the demands of regional and national development; and to help in preservation, dissemination, and enhancement of the national heritage and the culture of the region.

ACADEMIC INFORMATION

1. ACADEMIC YEAR

The Academic Year is divided into two semesters of at least 16 weeks, exclusive of registration and final examination periods. A summer session of 6 weeks follows the second semester. Class work in the summer session is equivalent to class work in one semester.

All academic units of UP Visayas operate under the semestral system, except for some graduate programs which are under the trimestral system.

2. COURSE NUMBERING

In general, courses in the lower division (freshman and sophomore years) are numbered 1 to 99, courses in the upper division (junior and senior years) are numbered 100 to 200, and graduate courses are numbered 201 to 400. Courses numbered 301 and above are generally professional courses in the doctoral program.

3. CREDIT UNIT

The unit of credit is the semester hour. Most classes taught at the University meet three hours a week, these classes carry 48 clock hours of instruction and three units of credit.

One university unit of credit is at least 16 full hours of instruction in the form of lecture, discussion, seminar, tutorial, or recitation or in any combination of these forms within a semester.

4. ACADEMIC LOAD

No undergraduate student shall be allowed to take more than 18 non-laboratory units or 21 units including laboratory; *Provided, however*, that a graduating student with an academic record better than average may be permitted to carry a heavier load in the last year of his course; *Provided, further*, that this rule shall not affect or alter any existing course duly approved by the University Council and the Board of Regents in which the normal semestral load is more than 18 units.

In the summer term, the normal load shall be six units, but in justifiable cases, the Dean may allow a student to take 9 units.

5. MEDIUM OF INSTRUCTION

English is generally used as the medium of instruction. However, the use of Filipino for teaching undergraduate courses has been strongly encouraged.

6. CLASSIFICATION OF STUDENTS

Undergraduate and graduate students are classified as either regular or non-regular.

Regular undergraduate students follow organized programs of study and comply with requirements which lead to the bachelor's degree or undergraduate diploma/certificate. They carry the full semestral load credit for their respective curricula and for registration and classification purposes are divided generally into freshmen, sophomores, juniors, and seniors.

According to year level, students under a 4-year program may be classified as follows:

1st Year: student who has not finished the prescribed subjects of the first year of his curriculum, or 25% of the total number of units required by his program

2nd Year: student who has satisfactorily completed the prescribed subjects of the first year of his curriculum, or has finished not less than 25% nor more than 50% of the total number of units required by his program

3rd Year: student who has satisfactorily completed the prescribed subjects of the first two years of his curriculum, or has finished not less than 50% nor more than 75% of the total number of units required by his program

4th Year: student who has satisfactorily completed the prescribed subjects of the first three years of his curriculum, or has finished not less than 75% of units required by his program

Regular graduate students are prospective candidates for the master's or doctoral degree. They may be either part-time or full-time students.

Non-regular students are (1) non-degree students, with credits; (2) cross-registrants, with credits; or (3) special students, without credit.

Non-Degree Students

A degree holder or undergraduate student who is not currently enrolled in any other institution of higher learning may be allowed to take for credit courses on the graduate and/or undergraduate level, respectively, provided that this student satisfies the appropriate requirements for admission to the University. He shall not be allowed to enroll for more than one semester, except by special permission of the Dean of the college concerned and the University Registrar.

Since he does not follow any organized program of study, a non-degree student is not a prospective candidate for graduation for any degree in the University.

Cross Registrants

Cross-registrants are students of other UP units or other institutions who enroll in a college/school of UP Visayas with credits.

Special Students

A mature student, even if he does not fully satisfy the entrance requirements, may be admitted as a special student and may enroll for such subjects which in the opinion of the instructor and the Dean, he has the necessary information and ability to pursue profitably. He shall not be allowed to enroll for more than 9 units a semester or to register for more than two years, except by special permission of the Dean. Subjects taken shall be non-credit although his work may be reported at the end of each semester as "satisfactory" or "unsatisfactory".

7. ADMISSION

No student shall be denied admission to the University by reason of age, sex, nationality, religious belief, or political affiliations.

Every applicant for admission shall undergo a thorough health examination. No person shall be admitted to this University who is found by the University Health Service to be suffering from a dangerous, communicable, contagious, or infectious disease or who is physically unfit to take courses in any college or school of the University.

Every student shall, upon admission, sign the following pledge: "In consideration of my admission to the University of the Philippines and of the privileges of a student in this institution, I hereby promise and pledge to abide by and comply with all the rules and regulations laid down by competent authority in the University and in the college or school in which I am enrolled." Refusal to

take this pledge or violation of its terms shall be sufficient cause for summary dismissal or denial of admission.

No person who has not duly matriculated may be admitted to the classes. In exceptional cases, the Registrar may, on the recommendation of the Dean concerned, authorize the admission of a visitor to a class for not more than 5 sessions.

Beginning Freshmen

The entrance requirements for each course shall be as prescribed by the faculty of the college offering the course and approved by the University Council and the President of the University.

Graduates of accredited high schools may be admitted as freshmen into the University of the Philippines on the following bases:

1. their performance in the UP College Admission Test (UPCAT);
2. their weighted average in the first three years of high school; and
3. their choice of UP campus and the quotas for specific degree programs/ colleges set by the University.

PEPT Certificate Holders

Holders of the Philippine Educational Placement Test (PEPT) certificates in lieu of high school diploma may be admitted to the University as new freshmen provided they pass the UPCAT.

Advanced Placement Examinations

A new freshman who qualifies for and passes the prescribed examination in basic courses in the freshman year such as Communication I and other languages, College Algebra and/or Plane Trigonometry, etc., within one year from his first enrollment in the University, shall be given credit for corresponding subjects in his academic program provided that this privilege may not be given for more than six (6) units in any one discipline. These examinations are usually scheduled two weeks before the registration every semester.

Application forms and other information regarding advanced placement may be obtained from the College Secretaries of the College of Arts and Sciences (for Iloilo and Miagao campuses), and UPV Tacloban College.

Deferment of Enrollment

A qualified freshman applicant who, for a valid reason, cannot enroll during the semester originally applied for may apply for deferment of enrollment to the next succeeding semester by writing to the University Registrar. Such applicant must not have taken any academic college subject prior to enrollment.

Transfer Students

Transfer from other Institutions

A transfer student may be admitted provided that:

1. he must have obtained an average grade of 2.0, 86%, or B, or better, for all the collegiate academic units he has earned outside of this University;
2. he must have completed at least 33 units of academic courses;
3. he will have to complete in this University no less than 50% of the units required for his program; and
4. the quota set by the Dean of the college or school concerned for the course to which he seeks admission, has not yet been filled up.

A transfer applicant, however, must take note of the following additional rules for transfer:

1. The computation of the general weighted average required of transfer students shall exclude vocational subjects;
2. The grade requirement is generally waived for a bachelor's degree holder, but not for those who have earned only a title below a baccalaureate degree (e.g., Certificate in Fine Arts); and
3. A college may require a higher weighted average than that prescribed above.

Any or all of the above rules may be set aside in exceptional cases upon the recommendation of the Dean concerned and upon the approval of the Chancellor.

Validation of Advanced Credits

An admitted transfer student must validate all the courses he is offering for advanced credits at the rate of at least 18 units a semester within a period not exceeding three semesters from the date of his admission. His admission will be on probation basis until such time as he shall have validated or repeated in accordance with this rule on validation of courses, all the subjects taken outside UP which are required for his program. The student will not be allowed to enroll in a subject or subjects the prerequisite of which, taken elsewhere, have not yet been validated or repeated in this University.

A student transferring from any recognized institution who possesses an Associate in Arts or its equivalent of 66 units of work may be enrolled without validation. Before a student is allowed to major in any discipline, the major discipline may prescribe additional courses up to 18 units of general education courses and/or preparatory courses for the major.

The grant of advanced credits for courses which are completed in other institutions but which have no equivalent in this University shall be left to the faculty of the unit concerned.

Application for advanced credit shall be made on the prescribed form to the Dean of the college or school which offers the course for which advanced credit is applied for. If the Dean is satisfied that the application is in order, he shall cause the proper department or division chairman to conduct the validating tests. The regular period for the holding of these validating tests shall begin two weeks prior to the first day of registration at the opening of each term and shall end on a week after the last day of registration. There shall be no fee for validating tests taken during this period. A validating test may be held outside of this period with the consent of the department or division chairman and the approval of the Dean and upon payment of the required fee per subject.

Advanced credit may also be granted by the University Registrar to students graduated from an institution recognized by the University Council for subjects listed in the course or courses duly recognized. Advanced credit for work constituting only part of courses recognized by the Council shall be awarded by the departments or divisions concerned in accordance with the above provision on application for advanced credit.

Each college may promulgate rules for the admission of transfer students and the granting of advanced credits provided they are not inconsistent with the general rules set by the University council.

Requirements for Submission

Every new transfer applicant should submit the following at least one month prior to registration: an official copy of grades or transcript of records from each college attended for evaluation, regardless of his intentions to validate his advanced credits, and an accomplished application form (UP Form 3.1); two passport-size photographs; and a non-refundable application fee.

If admitted, the students should submit an official copy of his transcript of records and certificate of honorable dismissal before issuance of the university admission slip.

Transfer Within UPS

Students from other autonomous units of the UP System who have completed at least 30 academic units may be admitted as transfer students subject to the rules of the admitting college/ school.

Upon admission, the student submits the following:
1. clearance from the college/school where he came from;*
2. permit to transfer; and
3. official transcript of records for those coming from other autonomous units; and
4. Certificate of Good Moral Character.

Transfer Within UPV

A student who has completed at least 15 units and who intends to transfer to another college/school of UPV writes directly to the Dean together with his true copy of grades.

Upon admission, the student submits the following:
a. Application letter addressed to the Dean;
b. true copy of grades;
c. College clearance;* and,
d. Certificate of Good Moral Character.

* In 2nd Semester 2012-2013, UPV Miagao and Iloilo adopted paperless clearance. Students needing college clearance for transfer/shifting can proceed to CRS staff for verification, Students needing university clearance can proceed to OUR office.

The college/school, from where the student came from, may issue a permit to transfer stating that it has no objection to the transfer to any college/unit of the UP System.

Admission of Foreign Students

Beginning Foreign Freshmen

An applicant who graduated from high schools abroad and who has not enrolled in college may be admitted as beginning freshman into non-quota programs without taking the UPCAT provided that he meets the following requirements:

1. completion of the high school program in the country where he had his secondary education;
2. qualifying in a college-qualifying national or international foreign-administered examination such as the General Certificate of Education (GCE) Examination or the Scholastic Aptitude Test (SAT) or equivalent examination:
   - GCE: 3 ordinary level passes and 2 advanced level passes
   - SAT: minimum total score of 1200
   - IBE: International Baccalaureate Examination Diploma; and
3. in the case of an applicant whose native language or whose medium of instruction in the secondary school is not English, a minimum score of 500 in the Test of English as a Foreign Language (TOEFL).

A graduate from a high school abroad who fails to satisfy the requirements for automatic admission (i.e., item 2 above) may take the UPCAT.

A Filipino who graduates from a secondary school abroad and applies for freshman admission to the University must satisfy the same requirements as those for foreign students.

Student coming from foreign countries shall be required to meet substantially the entrance requirements prescribed for a course; Provided that their previous training was obtained in an

institution of recognized standing; and Provided, further, that there is a place for them in the college or school.

Transfer Foreign Students

A foreign student with credits for college-level course work should meet the University requirements for transfer students.

If the applicant is transferring from another Philippine school, he should secure a permit to transfer from DECS.

Other Requirements/Regulations for Foreign Applicants

English Proficiency Test

A foreign applicant whose native language or whose medium of instruction in secondary school is not English should arrange to take the TOEFL. Information about this test, including the places and dates of administration may be obtained by writing directly to TOEFL, Educational Testing Service, Princeton, New Jersey 08540, USA. The applicant must request that a copy of his scores be sent to the Office of the University Registrar, University of the Philippines Visayas, Miagao, Iloilo, Philippines 5023.

To satisfy the English proficiency requirement, an applicant must be able to present a minimum score of 500.

Requirements for Submission

Only properly accomplished application forms with all the requirements listed below will be processed:

1. accomplished Undergraduate Admission Application (UP Form No. 3.2);
2. a non-refundable application fee of Php150 for resident foreign students and US$20 for non-resident foreign students in money order, cashier's or manager's check payable to the University of the Philippines Visayas;
3. official transcript of records from each high school and college attended and official examination certificates, if any - 2 copies;

   For evaluation purposes, photocopies of records may be accepted provided they are properly authenticated by the Department of Education or by duly designated authorities in the country of the applicant. Final admission will be subject to verification of documents submitted against original copies of credentials. Certified English translations should also be submitted, where necessary.

4. course syllabus, school catalogue, and handbook of examination;
5. certification from a reputable bank in the applicant's country about his capability to finance the travel, educational, personal and other expenses he is expected to incur in his studies in the Philippines - 2 copies;
6. official TOEFL results; and
7. copy of birth certificate or passport duly authenticated.

Credentials filed in support of the application become the property of the University of the Philippines Visayas and will not be returned to the applicant.

Immigration Requirements

A foreign student may be allowed to enroll only if he has a student visa (9-f) or any of the following types of visa:

1. 9(e), 9(e-1) or 9(e-2) - foreign government official or dependent
2. 47(a)(2) - exchange fellow or scholar sponsored by an international organization
3. 9(g) - pre-arranged employment (working/missionary visa)
4. PD 218 -- foreign investor
5. 9(d) -- treaty trader
6. 13, 13(a) to 13(g) -- permanent resident

Visas other than student visa may be applied for at the Philippine Consulate/Embassy in the student's home country.

A foreigner with a tourist visa (9-a) will not be allowed to enroll in the University of the Philippines.

Applying for a Student Visa

Report to the designated Philippine embassy/consulate upon appropriate notice and submit the following:

a. a valid passport;
b. visa application form (FA Form No. 2);
c. medical certificate (FA Form No. 11) in triplicate duly accomplished by the physician designated by the Philippine Consulate to perform the examination together with life-size chest x-ray film and laboratory reports; and
d. police clearance from where the applicant has been permanently residing.

Study Permit

All foreign students should secure a Temporary Study Permit from the Office of the University Registrar, UP Visayas before registering. Old students are required by the Office of the University Registrar to submit a copy of grades for the immediately preceding semester or a verification of their Immigrant Certificate of Registration (ICR).

Deadline for Filing Applications

To have ample time to secure his student visa and make necessary arrangements if accepted for admission, a foreign applicant is urged to file his application for admission at least six months prior to registration of the semester applied for, i.e., not later than December 31 for the first semester admission and May 31 for second semester admission.

Readmission

No readmission of dismissed students or disqualified students shall be considered by the Dean without the favorable recommendation of the University Guidance Counselor. Cases in which the action of the Dean conflicts with the recommendation of the University Guidance Counselor may be elevated to the Vice Chancellor for Academic Affairs. His decision shall be final.

Rejoining student (those not enrolled during the immediately preceding semester, excluding summer session) should first request for readmission from the Dean of their College where they were last enrolled before getting their enrollment permit. In the case of readmission from AWOL, the student pays a fine of Php225.

Former students who have attended another institution since attending the University of the Philippines must qualify on the same basis as new transfer students.

8. GENERAL EDUCATION PROGRAM

All undergraduate students enrolled in the bachelor's degree programs are required to take general education (GE) courses. Specifically, the GE program requires 45 units of courses distributed as follows:

Clusters		Units
Mathematics, Science, and Technology		**15**
Aquatic Science 1	*Fish Makes Sense*	3
Aquatic Science 16	*Fish Beyond Capture**	3
Biology 1	*Understanding Life*	3
Biology 20	*Living with Microbes in Sickness and in Health**	3
Environmental Science 10	*People and Environment*	3
Mathematics 1	*Mathematics for General Education*	3
Molecular Biology and Biotechnology 1	*Biotechnology and You*	3
Natural Science 1	*Foundations of Natural Science I*	3
Natural Science 2	*Foundations of Natural Science II*	3
STS 40	*Science, Technology and Society*	3
Social Sciences and Philosophy		**15**
History 1	*Philippine History*	3
History 2	*Asia and the World*	3
Philosophy 1	*Philosophical Analysis*	3
Psychology 10	*Looking at the Self Through Different Psychological Perspectives*	3
Social Science 1	*Foundations of Behavioral Science*	3
Social Science 2	*Social, Economic and Political Thought*	3
Social Science 5	*Understanding Gender*	3
Social Science 10	*Changing Asia**	3
Social Science 26	*People, Places and Spaces in a Changing World*	3
Arts and Humanities		**15**
Communication 1	*Communication Skills*	3
Communication 2	*Communication Skills*	3
Communication 3	*Speech Communication*	3
English 2	*Read Right, Write Right*	3
Humanities1	*Art, Society and the Individual*	3
Literature 1	*Literatures of the Philippines*	3
Literature 2	*Literatures of the World**	3
Literature 3	*Literature, Society and the Individual*	3

**Not offered in UPVTC as of SY 2012-2013*

The following GE courses with equivalences may not be required by some programs:

Courses	Equivalences
Mathematics 1	Mathematics courses up to Calculus
Natural Science 1	Chemistry 11 and Physics 21 or their equivalents
Natural Science 2	Geology 11 and Biology 10 (or Botany 10 and Zoology 10)

Additional requirements:

- In the Arts and Humanities Domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units in Philippine Studies in any domain (e.g. Hist 1, Lit 1)

9. PE REQUIREMENTS

All students are required to take physical education during their first two years in the University.

Eight (8) units of PE are required of all undergraduate students with the following exceptions:

1. students who hold the Associate in Arts title (or equivalent) or a bachelor's degree;
2. those who are 30 years old and above;
3. veterans of the armed forces, navy, or air force; and
4. those who have served on a fulltime basis for at least two years in the armed forces, navy, or air force.

The required PE courses include PE 1 and three other PE courses.

Proficiency Examination in Physical Examination (PEPE)

Proficiency examination (or credit by examination) in PE courses are given to enable students who are already skillful in one or more sports to acquire advanced units in PE. Any student who passes the PEPE shall be given credit for one or more PE courses.

A student who is graduating at the end of a given semester but who failed to enroll in a required PE course may take a special proficiency examination upon presentation of a certificate of candidacy for graduation from his College Secretary. The fee for the special PEPE is double the regular fee.

10. NATIONAL SERVICE TRAINING PROGRAM

Students, male or female, enrolled in any baccalaureate degree or at least two-year technical-vocational courses in public and private educational institutions shall be required to complete one of the NSTP components listed below as a requisite for graduation:

1. Reserve Officers' Training Corps (ROTC)
2. Literacy Training Service (LTS)
3. Civic Welfare Training Service (CWTS)

NSTP shall be undertaken for a period of two semesters. However, in lieu of the two semester program, a one-summer program may be designed, formulated, and adopted by the DND, CHED, and TESDA.

11. REGISTRATION

A student must be officially registered in order to receive credit for course work. The official registration form (UP Form 5) which is a record of classes for which the student has enrolled in is filed in the Office of the University Registrar.

No student shall be registered in any subject after one week of regular class meetings have been held, unless the Dean, on the basis of his scholastic record, permits his registration; *Provided*, that if registration is made outside the regular registration period indicated in the University calendar the student shall be subject to fine for late registration; *Provided*, *further*, that special students may register at any time without the payment of fine for late registration subject to other regulations of the University. Students may register for particular subjects within a semester when permissible under the system of instruction adopted by the college.

No fine for Late Registration shall be collected. [Memorandum No. PERR 06-22]

Late Registration Period shall no longer be observed. However, Chancellors are enjoined to allow a reasonable amount of time for registration. [1213th BOR meeting, 29 Sept. 2006]

In UPV, there will be no provision for Late Registration in the academic calendar. [79th EC Mtg., 09 Dec. 2011]

12. CROSS REGISTRATION

Within the University

No student shall be registered in any other college, school, or department of this University without the permission of the Dean of the college in which the student is primarily enrolled.

A student who wants to register in another campus in the University must fill out the cross-registration form (UP Form 5-B).

The total number of units of credit for which a student may register in two or more colleges or schools in this University shall not exceed the maximum allowed by the rules on academic load.

From another Institution

No student registered in any other institution shall be admitted to the University without a written permit from the Dean or Registrar. The permit shall state the total number of units for which the student is registered and the subjects that he is authorized to take in the University.

To another Institution

The University of the Philippines shall give no credit for any course taken by any of its students in any other university, college, or school unless the taking of such course was expressly authorized by the University Registrar on the recommendation of the Dean concerned. The authorization shall be in writing to be recorded by the University Registrar or by his representative, and shall specifically describe the subjects authorized.

Courses taken outside the University are subject to validation.

13. WAIVER OF PREREQUISITES

Courses approved by the University Council as prerequisites to other courses may not be waived.

However, in meritorious cases, a student who has previously enrolled and fully attended in a course that is prerequisite to another may be allowed to enroll and attend the latter course for credit, without having passed or earned credit for the prerequisite course.

No permission shall be granted except upon application by the student. The application shall be accompanied by a certification from the student's instructor in the prerequisite course that the student had fully attended said course. The application, furthermore, shall be accompanied by a certification from the Director of the Office of Student Affairs that the student's failure to pass or earn credit in the prerequisite course was not due to disciplinary action imposed upon him.

Each college shall be authorized to grant the permission, and shall act through a Dean's committee which shall determine the merit of the application, said committee to include the college secretary.

The student who is granted permission under these rules is required to enroll in the prerequisite course simultaneously with the course to which the former is a prerequisite, or immediately in the next semester.

14. CHANGE OF MATRICULATION

All transfers to other classes shall be made only for valid reasons. No change of matriculation involving the taking of a new subject shall be allowed after one week of regular class meetings has been held. Changes in matriculation shall be effected by filling up UP Form 26 and must be recommended by the adviser and approved by the Dean. The form, after being duly accomplished, shall be submitted to the University Registrar for assessment and notation.

The change of matriculation fee is P10.00 per course.

15. DROPPING OF COURSES

A student may, with the consent of his instructor and the Dean, drop a course by filling out the prescribed UP Form 26-A before 3/4 of the hours prescribed for the semester/trimester/ quarter term have elapsed, and not later. Any student who drops a course without the approval of the Dean shall have his registration privileges curtailed or entirely withdrawn. If a course is dropped after the middle of the term, the faculty member concerned shall indicate the date and the class standing of the student at the time of dropping as either *Passing* or *Failing* solely for administrative guidance.

Any college or school may enact special rules on dropping of courses which would meet their particular needs. *Provided*, that said rules do not have the effect of relaxing the preceding general regulations.

16. SUBSTITUTION OF COURSES

Every substitution of subjects must be based on at least one of the following:

1. when a student is pursuing a curriculum that has been superseded by a new one and the substitution tends to bring the old curriculum in line with the new;
2. when there is conflict of hours between a required subject and another required subject; or
3. when the required subject is not given.

Every petition for substitution:

1. must involve subjects within the same department, if possible; if not, the two subjects concerned must be allied to each other;
2. must be between subjects carrying the same number of units; and
3. must be recommended by the adviser and by the heads of departments concerned.

All petitions for substitution must be submitted to the Office of the Dean concerned before 12% of the regular class meetings have been held. Any petition submitted thereafter shall be considered for the following semester.

No substitution shall be allowed for any subject prescribed in the curriculum in which the student has failed or received a grade of 5.0, except when, in the opinion of the department offering the prescribed subject, or of the faculty in units without any departments, the proposed substitute covers substantially the same subject matter as the required subject.

All applications for substitution shall be acted upon by the Dean concerned. In case the action of the Dean is adverse to the recommendation of the adviser and the Head of the Department concerned, the student may appeal to the Chancellor whose decision shall be final.

17. ENROLLMENT IN GRADUATE COURSES

Senior undergraduates with a general weighted average of 2.0 or better are allowed to enroll in a maximum of 6 units of graduate courses in the University.

18. ATTENDANCE

Any student who, for unavoidable cause, absents himself from class must obtain an excuse slip from the Dean to be presented to the instructor concerned not later than the second class session following the student's return. In addition, in case the absence is due to illness, a certificate must be secured from the University Health Service.

Excuses are for the time missed only. All work covered by the class during the absence shall be made up to the satisfaction of the instructor within a reasonable time from the date of absence.

When the number of hours lost by absence of a student reaches 20% of the hours of recitation, lecture, laboratory or any other scheduled work in one subject, he shall be dropped from the subject, *Provided*, that a faculty member may prescribe a longer attendance requirement to meet their special needs. If the majority of the absences are excused, the student shall not be given a grade of 5.0 upon being thus dropped; but if the majority of the absences are not excused, he shall be given a grade of 5.0 upon being thus dropped. Time lost by late enrollment shall be considered as time lost by absence.

19. INTEGRATION PERIOD

A division or department chairman, with the approval of the Dean, may authorize any member of his unit to suspend formal classes for a period not exceeding three days before the final examinations to enable students to review; *Provided*, that in case of colleges with no divisions or departments, the suspension may be done by any member of the faculty, but also subject to the approval of the Dean; *Provided, further*, that faculty members who have been authorized to suspend their classes shall keep regular hours for consultation work.

20. EXAMINATIONS

The maximum period for each final examination shall be four hours.

21. GRADING SYSTEM

The work of students shall be graded at the end of each semester/ trimester/term in accordance with the following system:

1	- Excellent	3	- Passed
1.5	- Very Good	4	- Conditional
2	- Good	5	- Failed
2.5	- Satisfactory	INC	- Incomplete

Grades of 1.25, 1.75, 2.25 and 2.75 may also be given but in no case shall they be more detailed than in multiples of 0.25.

Only the above grades shall be officially recognized. However, some subjects are graded as follows:

P	-	Pass
F	-	Fail

The work of special students or students on audit may be reported at the end of the semester as “S” (Satisfactory) or “U” (Unsatisfactory).

The qualitative grades will not be used in computing GWA, but will be used only to break a tie in the ranking of students.

A grade of 4 means “Conditional”. It may be removed only by re-examination taken within the prescribed time of one (1) academic year where there are three regular removal periods. If the student

passes the reexamination, he is given a grade of 3, but if he fails, a 5. Only one reexamination is allowed which must be taken within the prescribed time. If a student does not remove the grade of 4 within the prescribed time, he may earn credit for the course only by repeating and passing it. A grade of 4 given for the first semester work of a two-semester course shall be converted to a grade of 3 if the student passes the second semester part of the same course in the same academic year, if he fails, the grade of 4 which he received for the first semester work shall be converted to a grade of 5.

The grade of INC is given if a student whose class standing throughout the semester is Passing, fails to take the final examination or fail to complete other requirements of the course, due to illness or other valid reasons. In case the class standing is not passing and the student fails to take the final examination for any reason, a grade of 5 is given.

Removal of the INC must be done within the prescribed time (within one academic year where there are three regular removal periods) by passing an examination or meeting all the requirements of the course, after which the student shall be given a final grade based on his overall performance.

22. REMOVAL OF GRADES OF "INCOMPLETE" (INC) OR "4"

Examinations for the removal of grades of INC and 4 may be taken without fee: (1) during the regular examination periods, if the subject in which a student failed to take his final examination is included in the schedule of examination for the period during which said removal examination is to be taken otherwise, said student is to be charged the required fee; (2) during the removal examination period, viz, the period covering ten days preceding the registration in each semester, provided that the examination is taken at the time that it is scheduled; and (3) within the ten-day period preceding the Christmas vacation in colleges in which there is no inter-semester vacation, provided that the examination is taken at the time it is scheduled.

Removal examinations may be taken at other times on the recommendation of the Dean and upon payment of a required fee. Students not in residence shall pay the registration fee besides the examination fee in order to be entitled to take the removal examination.

There shall be a regular period for removing grades of 4 and INC before the start of each semester. Such a grade may no longer be improved after the end of the third regular removal period immediately following the semester/term in which the grade was incurred. A grade of 4 received after removing a grade of INC, however, must be removed within the remaining portion of the prescribed period for the removal of the original grade of INC.

23. SUBMISSION OF GRADES

Every faculty member shall submit his report of grades as soon as possible after the final examinations at the end of each term. A period of five days is ordinarily allowed for each section for the grading of papers and the preparation of the report of grades. In case an instructor handles several sections and the interval between the examinations is less than five days, he shall submit the reports of grades for the five-day period after each examination, *Provided*, that all reports of grades must be submitted not later than seven days after the last day of the examination period. In justifiable cases, deviation from the above rules may be authorized by the Chancellor.

Penalties for Late Submission of Grades

Since the prompt submission of grades is in large part a matter of good management, discipline, and enforcement of University regulations, Department Chairmen, College Secretaries, and Deans are enjoined to bend all efforts towards compliance with codal provisions regarding deadlines for submission of grades as well as recommendations for graduation of students.

A faculty member who, without justifiable cause, fails to submit grades on time, shall pay a fine of not more than his salary per day for each day of delay.

The procedure for paying of the fine shall consist of the following steps:

1. Notification of deadline, including request for an explanation;
2. Report of delinquency; and
3. Order imposing the penalty.

24. CHANGE OF GRADES

A student who has received a passing grade in a given course is not allowed reexamination for the purpose of improving his grades.

No faculty member shall change any grade after the report of grade has been filed with the Secretary of the college or with the University Registrar. In exceptional cases, as where an error has been committed, the instructor may request authority from the faculty of his college to make the necessary change. If the request is granted, a copy of the resolution of the faculty authorizing the change shall be forwarded to the Office of the University Registrar for recording and filing.

Notwithstanding the foregoing provision and to avoid any injustice, the grade on a final examination paper may be revised by a committee of the Dean of the college if it should clearly appear, on the basis of the quality of the scholastic record of the student, that such grade is the result of an erroneous appreciation of the answers or of an arbitrary or careless decision by the faculty member concerned. Should the change of the grade on said paper affect the final grade of the student, the committee may request authority from the faculty of the college to make the necessary change in the final grade. The request for reconsideration shall be made within 30 days after the receipt of the final grade by the student concerned.

No student of the University shall directly or indirectly ask any person to recommend him to his professor/s for any grade in his class record, examination paper, or final report of grades. Any student violating this rule shall lose credit in the subject/s regarding which such recommendation is made. The fact that a student is thus recommended shall be *prima facie* evidence that the recommendation is made at the request of the student concerned.

25. HONORIFIC SCHOLARSHIPS

University Scholarships

Any undergraduate or graduate student who obtains at the end of the semester a weighted average of 1.45 or better, or 1.25 or better, respectively, is given this honorific scholarship. University scholars are listed in the President's List of Scholars.

College Scholarship

Any undergraduate or graduate student who, not being classified as University scholar, obtains at the end of the semester a weighted average of 1.75 or better, or 1.50 or better, respectively, is given this honorific scholarship. College scholars are listed in the Dean's List of Scholars.

Additional Requirements for Honorific Scholarships

In addition to the general weighted average prescribed, a student must have taken during the previous semester at least 15 units of academic credit or the normal load prescribed (in the case of graduate students, not less than 8 units); must be up-to-date with all the non-academic requirements (PE and NSTP); and must have no grade below 3 in any academic or non-academic subject.

Grades of INC must be completed by the end of the semester.
The effectivity of the scholarship is the end of the semester concerned.
Honorific scholarships do not entitle the holders to any tuition fee waiver, either partial or full.

26. SCHOLASTIC DELINQUENCY

The faculty of each college or school shall approve suitable and effective provisions governing undergraduate delinquent students, subject to the following minimum standards:

Warning. Any student who obtains final grades at the end of the semester below 3 in 25% to 49% of the total number of academic units for which he is registered will receive a warning from the Dean to improve his work.

Probation. Any student who, at the end of the semester obtains final grades below 3 in 50% to 75% of the total number of academic units in which he has final grades shall be placed on probation for the succeeding semester and his load shall be limited to the extent to be determined by the Dean.

Probation may be removed by passing with grades of 3 or better in more than 50% of the units in which he has final grades in the succeeding semester.

Dismissal. 1. Any student who, at the end of the semester, obtains final grades below 3 in more than 75% but less than 100% of the total number of academic units in which he receives final grades shall be dropped from the rolls of the college.

2. Any student on probation in accordance with the preceding rule who again fails in 50% or more of the total number of units in which he receives final grades shall be dropped from the rolls of his college or school.

3. Any student dropped from one college shall not ordinarily be admitted to another unit of the University, unless in the opinion of the Director of the Office of Student Affairs his natural aptitude and interest may qualify him in another field of study, in which case he may be allowed to enroll in the proper college, or school, or department.

Permanent Disqualification. 1. Any student who, at the end of the semester or term, obtains final grades below 3 in 100% of the academic units in which he is given final grades shall be permanently barred from readmission to any college or school of the University.

2. Any student who was dropped in accordance with the rules on Dismissal and again fails so that it becomes necessary again to drop him, shall not be eligible for readmission to any college or school of the University.

3. Permanent disqualification does not apply to cases where, on recommendation of the instructors concerned, the faculty certifies that the grades of 5 were due to the student's unauthorized dropping of the subjects and not to poor scholarship. However, if the unauthorized withdrawal takes place after the mid-semester and the student's class standing is poor, his grade of 5 shall be counted against him for the purpose of this scholarship rule. The Dean shall deal with these cases on their individual merits in the light of the recommendations of the Director of the Office of Student Affairs; Provided that in no case of readmission to the same or another college or school shall the action be lighter than probation.

A grade of Incomplete is not to be included in the computation. When it is replaced by a final grade, the latter is to be included in the grades during the semester when the removal is made.

Required courses in which a student has failed shall take precedence over other courses in his succeeding enrollment.

No readmission of dismissed students or disqualified students shall be considered by the Deans without the favorable recommendation of the University Guidance Counselor. Cases in which the action of the Deans conflict with the recommendation of the University Guidance Counselor may be elevated to the Vice-Chancellor for Academic Affairs. His decision is final.

27. LEAVE OF ABSENCE

A leave of absence should be requested in a written petition to the Dean. The petition should state the reason for which the leave is desired and should specify the period of the leave. The leave should not exceed one year but may be renewed for at most another year. When not taken in two successive years, the aggregate leave of absence should not exceed two years.

A student who needs to go on leave of absence beyond the allowable period of two years should be advised to apply for an honorable dismissal without prejudice to readmission.

The college, through the Dean or his duly authorized representative, shall inform (1) the University Registrar and (2) the parents/guardian of every student granted leave of absence of such leave, indicating the reasons for the same and the amount of money refunded to the student, if any.

For leave of absence availed of during the second half of the semester, the faculty members concerned shall be required to indicate the class standing of the student (passing or failing) at the time of the application for the leave. No application for leave of absence shall be approved without indicating the student's class standing by the instructors concerned. This, however, should not be entered in the official Report of Grades.

If a student who withdraws after ¾ of the total number of hours prescribed for a course has already lapsed, his instructors may submit a grade of 5 for him if his class standing up to the time of his withdrawal is below 3.

A student who withdraws from a college without formal leave of absence shall have his registration privilege curtailed or entirely withdrawn.

28. MAXIMUM RESIDENCE RULE

A student must finish the requirements of a course of any college within a period of actual residence equivalent to 1 1/2 times the normal length prescribed for his program, otherwise he shall not be allowed to register further in that college.

In the case of undergraduate students who seek readmission after exhausting the maximum residence and being on AWOL for five (5) or more years, they shall be made to follow the prevailing curriculum at the time of their readmission.

In the case of students who seek readmission after exhausting the maximum residence and being on AWOL in less than five (5) years, they shall be made to follow any of the curricula enforced from the time they first attended the University to the present.

This rule shall not apply to graduate students who are covered by specific rules or to students governed by existing rules regarding a maximum period. Furthermore, account shall be taken of the provision of Article 243 of the Revised University Code which states that members of the faculty, officers, and employees of the University have a privilege of enrolling in the University for not more than 6 units a semester at reduced rates of fees.

29. HONORABLE DISMISSAL

A student in good standing who desires to sever his connection with the University shall present a written petition to this effect to the University Registrar, signed by his parent or guardian. If the petition is granted, the student shall be given honorable dismissal. Without such petition and favorable action, no record of honorable dismissal shall be made.

Generally, honorable dismissal is voluntary withdrawal from the University with the consent of the University Registrar or his representative. All indebtedness to the University must be settled before a statement of honorable dismissal will be issued. The statement indicates that the student withdrew in good standing as far as character and conduct are concerned. If the student has been

dropped from the rolls on account of poor scholarship, a statement to that effect may be added to the honorable dismissal.

A student who leaves the University by reason of expulsion due to disciplinary action shall be allowed to obtain his academic transcript of record without reference to Dishonorable Dismissal, provided:

1. the student writes an application;
2. not less than one (1) school year, beginning the school year immediately following the effectivity of the expulsion decision has elapsed;
3. the party concerned, during the period of expulsion, has not been involved in any untoward incident affecting the University, or been charged in court after the fiscal's investigation; and
4. all such applications are subject to Board of Regents action.

Certificates of honorable dismissal shall not be issued to graduates. Leaving the University by means of graduation (i.e., compliance with all the requirements of the degree) is different from a student's voluntary withdrawal from the University (i.e., honorable dismissal). Once graduated, the student may not be given honorable dismissal.

30. SECOND BACCALAUREATE DEGREE

Only one baccalaureate degree may be conferred at a time. A holder of a University of the Philippines bachelor's degree may earn another bachelor's degree upon the successful completion of *at least* 36 additional units prescribed by a discipline, after the previous degree.

31. GENERAL RULES GOVERNING GRADUATE PROGRAMS

Academic Calendar

Graduate programs at UPV operate on either of two modes of the academic calendar. For any program, the academic year is made up of either of two terms or semesters, or, three terms or trimesters.

Application and Admission

Applications for admission shall be addressed to the Dean of college/school offering the degree program. Applications may be submitted at any time throughout the year and accompanying documents should be received one month before the start of the academic year to provide enough time for consideration and processing. Applicants notified of their acceptance for admission should inform the Dean of the college/school concerned of their decision to enroll or not, as soon as possible.

Admission into the Master's Programs

The basic requirements for admission to the master's program are:

1. possession of a bachelor's degree or its equivalent (degree or title) from the University or from other recognized institutions of higher learning;
2. high quality and integrity of intellect; and
3. English proficiency.

These qualifications shall be determined through (a) examination of undergraduate credentials, (b) recommendation of two former professors and/or recognized authorities in the discipline or area of specialization, (c) character reference, and (d) interview with the applicant, or other appropriate means.

English Proficiency

All foreign students from countries where English is not a medium of instruction and/or not the native language, should pass an English proficiency examination (e.g., a score of at least 500 in Test of English as a Foreign Language).

Those who fail may be admitted into the University as non-degree students. However, they should pass the prescribed English courses at UPV or other valid English Proficiency Examination within the first year of their initial enrollment.

Program of Study

A program of study shall be drawn up by the program adviser or committee in consultation with the student during the first semester/ trimester of residence. The approved program shall be filed with the head of the unit not later than the second semester/trimester of residence.

Course Work

A master's program may or may not require a thesis.

1. For programs that require neither a comprehensive examination nor a thesis, a minimum of 36 academic units shall be required.
2. For programs that require a comprehensive examination and no thesis, a minimum of 30 academic units shall be required.
3. For programs that require a comprehensive examination and a thesis, a minimum of 24 academic units shall be required.
4. For programs that require a thesis and no comprehensive examination, a minimum of 24 academic units shall be required.

Instead of a thesis and in addition to the comprehensive examination, a program may require the completion of a seminar, practicum, or research project in light of an identified special problem.

Full-time graduate students shall be allowed to take at most 12 units but not less than 6 units a semester/trimester, except for programs which require more than 12 units or less than 6 units.

Part time students shall be allowed a load of not more than 6 units or an equivalent load of two courses in any semester/trimester.

Under meritorious circumstances, the student may be allowed more than the prescribed academic load by the college/school Dean.

Advance or Transfer Credit

A student whose application for admission has already been approved and is duly matriculated may apply for advance credits or transfer credits for work done in another institution upon:

a) presentation of credentials showing that he passed in another institution courses fully equivalent to those given in the college/school for which credit is sought; and
b) passing the validating test given by the department concerned.

Not more than nine (9) units of advance credit or transfer credit may be granted for course work done towards the master's degree provided these courses have been taken within five (5) years before admission, and unless course work is done in another institution of higher learning with prior approval of the Chancellor (upon recommendation of the Dean). Application for advance credits should be filed with the appropriate department/division/institute not later than during the first semester/trimester of residence.

The validating examination shall be conducted by the GPO or the unit concerned during the first year of residence. Permits to take the validating examination shall be issued by the college/school concerned. Results of the validating examination shall be submitted to the college/school not later than one week after the examination.

The period for holding the validating examination shall be determined by the department/division offering the course in coordination with GPO.

Advance credits, which are subject to validation, may be earned from courses taken at institutions outside of the UP System.

Transfer credits may be directly earned from courses taken at other UP units. Courses taken that may be considered equivalent to those required in the program pursued are subject to substitution by the division/department/institute concerned. The substitution of courses in the student's approved program of study shall be in accordance with University rules and regulations.

No units in undergraduate courses may be credited to graduate work.

Minimum Grade Requirement

After having completed 50 percent of the total number of units prescribed, a student will be disqualified from the program if his weighted average is below "2.0"

Residence/Time Limit for Completion

The graduate student is in residence when he is officially enrolled – whether he is on campus for course work requirements or off-campus for his research work. In the latter case, approval of his Thesis Committee is necessary.

The student should be enrolled for residency at least one (1) year prior to the conferment of his degree.

Not more than five (5) calendar years from the start of graduate work shall be allowed for the fulfillment of all requirements for the master's degree for both full-time and part-time students. Requests for extension of residence for not more than one (1) year should be subject to the approval of the Chancellor.

The five-year maximum time of completion includes leave periods. Meritorious cases, however, may be granted an extension of not more than one (1) year at a time, but in no case totaling more than five (5) calendar years including leave periods provided that the student is required to enroll in a 3-unit graduate course for every two (2) years, or a fraction thereof, beyond the five year limit.

Additional Rules for Transfer Students

For graduate students transferring from another university, the maximum residence shall be reduced by one semester for 9 transferred credit units or for a fraction thereof.

Leaves and Readmission

A graduate student may request in writing for a leave of absence (LOA) for at least a semester/trimester from the Dean of the college/school concerned. Approval of LOA is granted for not more than one (1) year at a time.

The student who leaves his work during an academic term without such formal permit is considered absent without leave (AWOL) and loses his registration privileges.

Any leave period of a graduate student is accounted for as part of his residence in the program pursued. To graduate within the allowed residence period of their respective programs, the total leave time of any student should not exceed two (2) academic years.

A student who was not able to complete the requirements for the degree within the limit, that is five (5) calendar years for master's degree, may apply for readmission into the program at the appropriate college/school.

For those returning from AWOL status, readmission requires payment of the appropriate fee; no payment is required for those returning from approved leaves.

An application for a waiver of the residency rule is further required of those who would be beyond the allowed residency period upon their return from leaves.

To be eligible for readmission, the master's student must have a GWA of "2.0" or better in all graduate-level courses taken in the program.

Courses taken previously may be credited by passing a department/ division/institutional written validating examination. Only existing course or courses which cover substantially the same subject matter as the existing courses may be validated. The student cannot validate any course work which at the time of validation, was taken more than five (5) calendar years ago.

Grading System and Retention

Grades of "1.0" to "3.0" are passing marks in the UP System. A "4.0" is conditional and a "5.0" is a failing grade.

The student who removes his conditional mark of "4.0" within the academic year that a grade is obtained may only receive a final grade of "3.0" or "5.0". An incomplete (INC) mark implies a passing average for a student who has not completed all course requirements, although a "4.0" may occur upon completion. A student may complete the course requirements within the academic year – i.e., within three (3) removal periods – that the INC grade is incurred.

The graduate student's general weighted average (GWA) is computed when s/he has completed 50 percent of the prescribed total number of course units for his degree program. The student will be disqualified from the program if his GWA is below "2.0".

A grade lower than "3.0" in any of the prescribed courses automatically disqualifies the student from any of the graduate programs.

The Master's Thesis

After earning at least 50 percent of the units of the prescribed program, the student may be authorized to work on his thesis, except for programs that require completion of all the courses with an average grade of "2.0".

The student enrolls in the master's thesis only once, and he shall be given a grade only upon completion of all the thesis requirements. At the end of each semester, the student shall be marked "in progress" until such time that he has completed all requirements.

A thesis committee of the student shall be constituted after his/her completion of the required units. The constitution and membership of the thesis committee will depend on the requirements of the program as determined by the unit concerned.

The composition of the thesis committee shall be approved by the dean of the college/school upon the recommendation of the chairperson of the major department/division/institute. The GPO shall be informed of the composition of the thesis committee and/or any change thereof.

The thesis proposal must be approved by the thesis committee before actual research may be done.

The student may conduct his thesis work off-campus with the approval of the Thesis Committee. When his thesis entails off-campus work for at least an academic term, the student should be enrolled and should make periodic progress reports to his Thesis Adviser.

Copies of the draft of the thesis when completed in all respects and editorially acceptable as judged by the adviser, shall be submitted to the student's thesis committee for criticism, evaluation, and suggestions for improvement.

Upon favorable assessment of the student's draft by the Thesis Committee, he shall apply for the thesis examination.

The schedule for the oral presentation and defense may be set upon the favorable action of his Thesis Committee, the division/department/institute concerned, and the head of the academic unit.

The Thesis Adviser shall chair the committee for the thesis examination. The student shall present his thesis in a public forum attended by all members of his Thesis Committee. Immediately following this public forum, the Thesis Committee examines the candidate in an executive session.

To pass the thesis defense in oral examination, the student must receive not more than one (1) negative vote from the committee members.

The Thesis Committee Chair shall report the results to the Dean within one (1) week after the examination.

Eight (8) bound copies of the approved thesis shall be submitted to the college/school not later than the following deadlines:

a. *For Summer graduates* – the day before the first day of regular registration for the succeeding first semester/trimester;
b. *For First Semester/Trimester graduates* – the day before the first day of regular registration for the succeeding second semester/trimester;
c. *For Second Semester/Trimester graduates* – the day before the Graduate Program Council meets to decide on the graduation of students.

A student who fails the oral thesis examination may be given a re-examination not earlier than one (1) month, but within twelve (12) months after the first examination. With the approval of the college/school Dean, the student has the option to select a newly constituted Thesis Committee.

Failure to pass the second oral examination shall disqualify the student from earning the degree.

Comprehensive Examination

After completing all academic course requirements, students in the non-thesis program shall submit their applications for the comprehensive examination duly recommended by the chairman of the major department to the dean of the college/school. The applications must be submitted one (1) month before the date of examination and must be accompanied by certified true copies of grades of the students.

The student must obtain a weighted average grade of "2.0" or better for all courses prescribed under the major and cognate fields of the program concerned in order to qualify for taking the comprehensive examination.

The comprehensive examination, which shall be in written form, shall be administered by GPO or college/school concerned. The examination shall test the student's competence in integrating and applying knowledge in the general field and his/her special field.

The examination shall be supplemented by an oral examination, if desired, by the comprehensive examination committee.

A grade of "2.0" or better in both the general and special fields is required in order to pass the comprehensive examination.

A student who fails in a field or fields of the comprehensive examination may be given one (1) re-examination not earlier than one (1) month but not later than one (1) year after the first examination.

Failure to pass the second examination shall disqualify the student permanently from earning the degree program.

The Chancellor appoints the chair and members of the Comprehensive Examination Committee (CEC) upon the recommendation of the respective Deans.

The CEC is responsible for the formulation of questions and the marking of the test papers. Each committee shall be composed of three (3) faculty members/lecturers who were active when the concerned students were pursuing their course work. Lecturers may only participate as members of such committees.

The chairperson of the committee shall submit to the dean of the college/school, through the division/department/institute head, the results of the examination within one (1) week and not later than one (1) month from the date of the examination.

Second Master's Degree

A graduate student who has earned a master's degree in UP wishes to earn another master's degree therein must satisfy the following requirements:

1. earn in the University course credits of at least eighteen (18) graduate units in addition to the common course requirements with respect to his first master's degree; and
2. complete all other requirements of the second master's degree.

These additional units are exclusive of the thesis in case of Plan A, or of other requirements in lieu of thesis in case of Plan B or other alternate graduate programs, and shall be in advanced courses in the student's major field and cognates from other related graduate courses in the university which may strengthen the new area of specialization.

32. GENERAL RULES GOVERNING DOCTORAL DEGREE PROGRAM

Admission Requirement

For admission to a doctoral program, an applicant must satisfy the following minimum requirements for admission:

a. possession of a bachelor's degree or its equivalent (degree or title) from the University or from other recognized institutions of higher learning;
b. satisfactory evidence of professional promise, attainment, and scholarship as indicated by previous preparation;
c. fulfillment of any special requirements for the major field that is chosen by the student;
d. intellectual ability and personal qualifications;
e. quality academic work done in the institution graduated from; and
f. demonstrated capability in research.

A duly accomplished application form must be submitted to the college/school concerned, UPV, Miagao, Iloilo, Philippines 5023 together with the following documents:

a. Official transcript of records, in the English language, from each college previously attended;
b. For baccalaureate degree holders, two (2) letters of recommendation from former professors. If with a master's degree, the third letter of recommendation must be from a major professor. (These must be sent by separate mail);
c. certificate of English proficiency by a professor of English. This is required only of applicants from countries where English is not the medium of instruction and/or not the native language; and

d. a non-refundable prescribed application fee for Filipino citizens or foreign nationals in bank draft or money order remitted to UPV. The correct major department should be properly indicated in the application.

Applications for admission may be submitted at any time throughout the year. However, it is strongly recommended that applications and documents be sent as early as possible to ensure ample time for processing and consideration.

It is requested that those applicants accepted for admission inform the college/school concerned of their plan to either accept or reject the admission offer as soon as their decision is made.

The Doctoral Program of Study

A Program Adviser shall be appointed by the college/school Dean to formulate the program of study of the doctoral degree student (in Ph.D., D. Sc., Ed.D., etc.). Only full-time members of the graduate faculty shall serve as program advisers.

The doctoral student's program of study is based on the student's academic preparation and desired specialization. The program of study shall be endorsed by the home unit concerned for action by the Dean of the academic unit concerned. Changes in the program of study may be allowed by the Dean upon written request of the student with the consent of the Program Adviser.

Course Work

The course work for the doctoral program shall require the completion of a minimum of 34 units of course work if the student has master's degree, and a minimum of 45 if he has a bachelor's degree.

Transfer of Credits

No more than nine (9) graduate units earned for doctoral courses in another university shall be credited to course work for doctoral program, provided, these courses have been taken within five years before admission to the program and have not been credited to a previously earned degree.

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Residence Requirement

All requirements for the doctoral degree must be completed within six (6) years from admission to the program. Extension may be allowed in highly meritorious cases. The candidate shall be in-residence for one year prior to conferment of the degree.

The Doctoral Committee and the Comprehensive Examination

To qualify for taking the comprehensive examination, the student must obtain a weighted average grade of "1.75" or better.

After one year of residence, a Doctoral Committee shall be formed subject to the approval of the Dean of the college/school. The Doctoral Committee shall be composed of at least five members, with one member coming from outside the college/school, and the Program Adviser as Chairperson. The comprehensive examination shall aim to test the student's ability to integrate and apply the knowledge obtained from his program of study.

The examination shall be both oral and written to be administered by the Doctoral Committee. The written examination shall be given at intervals of two days and shall not be less than three hours for each area in the major and cognate fields; but the whole examination shall not be longer than 15 hours.

Failure at a second try shall bar the student permanently from his program.

Advancement to Candidacy

After passing the comprehensive examination, the student shall be considered as having been advanced to candidacy for the degree.

The Doctoral Dissertation

The doctoral dissertation shall be enrolled only once. At the end of each semester, the student shall be marked "in progress" until such time that he has completed all requirements.

The Dissertation Adviser and the Dissertation Committee

The doctoral candidate shall select a Dissertation Adviser from his home unit who has published as senior author of at least five (5) articles in peer reviewed journals.

In consultation with the Dissertation Adviser as Chair, the candidate selects his/her dissertation topic and three (3) other members of his Dissertation Committee, subject to the action of the Dean of the academic unit concerned. Only one of these members should be from outside the student's college/school. The Critic/External Examiner is appointed as the fifth member of the candidate's Dissertation Committee in time for the student's defense in the final oral examination.

The Doctoral Committee shall guide the student in the preparation of the dissertation which must embody an original and independent research and be a worthwhile and significant contribution to scholarship in the field pursued by the student.

The Preliminary Oral Examination

As a doctoral candidate, the student submits a research proposal to the Dissertation Committee for evaluation. Upon the committee's assessment of the readiness of said proposal, the student defends it in a preliminary oral examination that may last between three (3) to five (5) hours. The preliminary oral examination evaluates the student's comprehension of the basic principles related to the dissertation problem and his preparedness to undertake the proposed research. This will also serve to further improve the proposal and enhance the student's capacity to implement it.

The Final Oral Examination and the Defense Panel

When the Dissertation Committee has determined the completeness of the candidate's dissertation manuscript for the final defense, a Critic/External Examiner from outside the home college/school is appointed by the Chancellor, on recommendation of the Dissertation Committee. The Defense Panel that includes the Critic/External Examiner as the fifth member of the Dissertation Committee shall set the schedule of the final oral examination.

The final oral examination conducted by the Defense Panel may last between three (3) to five (5) hours. The examination assesses the student's ability to present scientific data in a systematic and scholarly manner as well as his capacity to define potential areas from the research process and its outcomes.

To pass the final oral examination, the doctoral candidate must not obtain more than one (1) negative vote from the members of the Defense Panel. If there is no unanimous approval, the defense panel should reach a consensus or the decision of the majority should prevail.

Failure at a second final oral examination given within twelve (12) months of the first one shall permanently disqualify the candidate from earning the degree.

33. GRADUATION REQUIREMENTS

No student shall be recommended for graduation unless he has satisfied all academic and other requirements prescribed for graduation.

Candidates for graduation who began their studies under a curriculum more than 10 years old shall be governed by the following rules:

1. Those who have completed all the requirements of the curriculum but did not apply for, nor were granted, the corresponding degree or title shall have their graduation approved as of the date they should have originally graduated.

2. Those who had completed all but two or three subjects required by a curriculum shall be made to follow any of the curricula enforced from the time they first attended the University to the present.

During the first three weeks after the opening of classes in each semester, each Dean or his duly authorized representative shall certify to the University Registrar a list of candidates for graduation at the next commencement. The University Registrar, in consultation with the chairmen of divisions or departments concerned, in the case of students majoring in their respective departments or divisions, shall then inquire into the academic record of each candidate with a view of ascertaining whether any candidate in such a list has any deficiency to make up and whether he has fulfilled all other requirements which qualify him to be a candidate for graduation. If there should be any question regarding a candidate, his name should not be deleted from the list of candidates for graduation, but footnotes to that effect should be given. Ten weeks before the end of the semester the University Registrar shall publish a complete list of duly qualified candidates for graduation for that semester.

All candidates for graduation must have their deficiencies made up and their records cleared not later than five weeks before the end of their last semester, with the exception of those in academic subjects and work in Physical Education and National Service Training Program in which the student is currently enrolled during that semester.

No student shall be graduated from the University unless he has completed at least one year of residence work which may, however, be extended to a longer period by the proper faculty. The residence work referred to must be done immediately prior to graduation in the case of the following:

1. a student transferee from other schools.
   This residence requirement is in addition to completion of at least 50% of the required units for the course; and
2. a student who has been absent without official leave (AWOL).

No student who fails to pay the required graduation fee within the specified period set by the University Registrar shall be conferred any title or degree. Such a student may, however, upon his request and payment of the necessary fees, be given a certified copy of his credentials without specifying his completion of the requirements towards any title or degree.

Students must file formal application as candidates for graduation with the offices of the Deans of their respective colleges.

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Graduation Requirements for Graduate Students

A graduate student shall be considered a candidate for graduation if he meets the following requirements:

a) Masteral students must have a minimum weighted average of “2.0” for all the required courses taken; doctoral students must have a minimum weighted average of “1.75” for all required courses taken,
b) Masteral students, must have passed the oral defense of his/her thesis and submitted the required number of copies of the approved thesis; or must have passed the comprehensive examination; doctoral students must have passed the final oral examination of the dissertation and submitted the required number of copies of the approved dissertation.
c) Must satisfy all other requirements prescribed by the degree program pursued; and
d) Must have been in residence one (1) year immediately prior to graduation.

The student must file the application for graduation and diploma with the college/school according to the academic calendar schedule.

Faculty Recommendation

A graduating student must first be recommended by the faculty of the college concerned and by the UPV University Council before his graduation may be considered by the Board of Regents.

Approval of Graduation by the President Sufficient in Certain Cases

The President may approve the graduation of students in cases where (1) their grades are submitted beyond the deadline fixed by the University Council, and (2) the students concerned are certified by the faculty of the unit concerned, the Office of the University Registrar, and the Committee on Graduation of the University Council as having satisfied all the requirements for graduation, *provided, however*, the list of students so approved for graduation under the delegation of authority is submitted at the next meeting of the Board of Regents for its information.

34. GRADUATION WITH HONORS

Students who complete their baccalaureate degree with the following absolute minimum weighted average grade shall be graduated with honors:

Summa cum laude	1.20
Magna cum laude	1.45
Cum laude	1.75

All the grades in all subjects prescribed in the curriculum, as well as subjects that qualify as electives, shall be included in the computation of the weighted average grade.

In cases where electives taken are more than those required in the program, the following procedure would be followed in selecting the electives to be included in the computation of the weighted average grade:

1. For students who did not shift programs, consider the required number of electives in chronological order.
2. For students who shifted from one program to another, the electives to be considered shall be selected according to the following order of priority.
   a. Electives taken in the program where the student is graduating will be selected in chronological order.
   b. Electives taken in the previous program and acceptable as electives in the second program will be selected in chronological order.
   c. Prescribed courses taken in the previous program but qualify as electives in the second program will be selected in chronological order.

Additional Rules

Candidates for graduation with honors must have completed in the University at least 75 percent of the total number of academic units or hours for graduation and must have been in residence therein for at least two years immediately prior to graduation.

In the computation of the final average of candidates for graduation with honors, only resident credits shall be included.

Students who are candidates for graduation with honors must have taken during each semester/trimester/ quarter not less than 15 units of credit or the normal load prescribed in the curriculum in cases where such normal load is less than 15 units, unless the lighter load was due to

justifiable causes such as health reasons, the unavailability of courses needed in the curriculum to complete the full load, or the fact that the candidate is a working student.

To justify lighter academic load, the submission of pertinent documents is required, as follows:

1. ***For health reasons*** - medical certification to be confirmed by the University Health Service.
2. ***For unavailability of courses*** - certification by the major adviser and copy of schedule of classes.
3. ***For employment*** - copy of payroll and appointment papers indicating among others duration of employment.

It is the responsibility of the student to establish beyond reasonable doubt the veracity of the cause(s) of his light loading. It is required in this connection that documents submitted to establish the cause(s) of his light loading, such as certificate of employment and/or medical certificate, must be sworn to. These documents must be submitted during the semester of light loading.

35. COMMENCEMENT EXERCISES

Attendance at general commencement exercises shall be optional. Graduating students who choose not to participate in the general commencement exercises must so inform their respective deans or their duly designated representatives at least 10 days before the commencement exercises.

Graduating students who absent themselves from the general commencement exercises shall obtain their diplomas, or certificates, and transcript of records from the Office of the University Registrar provided that they comply with the above provision and upon presentation of the receipt of payment of the graduation fee and student's clearance*.

Academic Costumes

Candidates for graduation with degrees or titles which require no less than four years of collegiate instruction shall be required to wear academic costumes during the baccalaureate service and commencement exercises in accordance with the rules and regulations of the University.

36. TRANSCRIPTS

Student records are confidential and information is released only at the request of the student or of appropriate institutions. "Partial" transcripts are not issued. Official transcripts of records obtained from other institutions and which have been submitted to the University for admission and/or transfer of credit become a part of the student's permanent record and are issued as true copies with the UP transcript.

Application for transcript of records should be accompanied by a student clearance*.

** In 2nd Semester 2012-2013, UPV Miagao and Iloilo adopted paperless clearance. Students needing university clearance can proceed to OUR office.*

COLLEGE OF ARTS AND SCIENCES

The College of Arts and Sciences (CAS) was originally UP Iloilo College (UPIC) established on July 1, 1947, initially with 16 faculty members, 223 students and five preparatory programs. UPIC became a full-fledge college in 1954 offering undergraduate and graduate degree programs and a four-year high school diploma. Later, UPIC changed its name to UP College Iloilo (UPCI). Upon the establishment of an autonomous University of the Philippines in the Visayas on May 31, 1979, UPIC became the College of Arts and Sciences.

The CAS offers most of the general education courses that is the foundation of all academic programs of the University. The College equips the students with basic knowledge in the natural sciences, social sciences and humanities; the skills necessary to communicate and to analyze and integrate knowledge; and the ability to learn independently and think critically. It offers four-year interdisciplinary programs with double majors supportive of or complementary to those offered by other colleges.

As a college composed of various disciplines, including a Division of Professional Education which supervises a laboratory high school designed to train underprivileged youth, especially from rural areas, the CAS takes the lead in strengthening programs related to technology transfer, professional competence, and values clarification, inculcating in the student a better understanding of himself/herself as a Filipino with a deep sense of nationalism and pride in the cultural heritage.

VISION

A premier institution of liberal arts and science education sensitive and responsive to the needs of changing times locally and internationally.

MISSION

Through programs in the liberal arts and sciences, the College of Arts and Sciences seeks to:

1. Nurture the intellectual and creative capabilities of empowered individuals and groups for responsible citizenship through an understanding and appreciation of socio-cultural traditions.
2. Be a dynamic college that inculcates in the students:
   - ❖ Basic knowledge in the natural and social sciences and the humanities
   - ❖ Skills necessary to communicate and to analyze and integrate knowledge
   - ❖ Ability to learn independently and think critically; and
   - ❖ A strong sense of nationalism
3. Engage in research and public service activities that project commitments to the value of heritage, democratic expression, scientific progress, and community development.

UNDERGRADUATE PROGRAMS

Aside from offering single major areas of concentration, the CAS also offers four-year interdisciplinary programs with double majors designed to provide graduates with a reasonable grasp of knowledge, skills and values in two related mutually reinforcing disciplines and fields.

1. Bachelor of Arts
    - Community Development
    - History
    - Literature
    - Political Science
    - Psychology
    - Sociology
2. Bachelor of Arts in Communication and Media Studies
3. Bachelor of Science in Applied Mathematics
4. Bachelor of Science (Biology)
5. Bachelor of Science in Chemistry
6. Bachelor of Science in Computer Science
7. Bachelor of Science in Economics
8. Bachelor of Science in Public Health
9. Bachelor of Science in Statistics

GRADUATE PROGRAMS

1. Master of Chemistry
2. Master of Education
    - Biology
    - English as a Second Language
    - Filipino
    - Guidance
    - Mathematics
    - Physics
    - Reading
    - Social Sciences
3. Master of Science in Biology

ADMISSION AND RETENTION POLICIES

BA in Communication and Media Studies

Admission Policy

Students from other degree programs and other educational institutions may be accepted into the BA CMS program provided they have no failing grades in English and communication related courses; they also need to pass oral and written exams.

Retention Policy

To stay in the program, a student must maintain a cumulative general weighted average (GWA) of 2.75 or better upon completion of CMS courses specifically CMS 11, CMS 100, CMS 101, CMS 102, CMS 103, and CMS 105.

Bachelor of Science (Biology)

Retention Policy

The student must pass both Botany 10 and Zoology 10 within the first two years in the program in order to continue with the program.

Master of Chemistry

Admission Requirements

1. At least nine (9) units in the area of specialization and at least two years experience; or major in the area of specialization (or related field);
2. At least six (6) units in mathematics; and
3. Passing the written entrance examination.

HIGH SCHOOL DIPLOMA

Instruction at CAS includes secondary education. The UP High School in Iloilo has adopted since 1989, a democratized admission policy under which first year students from low-income families are admitted. The High School serves as the laboratory of the MEd program for innovative teaching designed to enhance and strengthen the training of disadvantaged students in order to better prepare them for access to tertiary education in the University of the Philippines.

FACILITIES

The CAS building in the UPV main campus sits on a fifty-two hectare area which is a chunk of the 1,200 hectares total UPV Miagao property. It houses the administrative offices of the Dean, College Secretary, offices of the Chairs and faculty members of the Divisions of Biological Sciences, Humanities, Physical Sciences and Mathematics, and Social Sciences and the Departments of Chemistry and Physical Education; classrooms, biological, chemical and physical laboratories, audio visual room, computer laboratories, Intra-School Broadcasting Laboratory, research rooms and Analytical Services Laboratory.

Part of CAS is found in the Iloilo City campus such as the offices of the UPHSI Principal and the Division Chair and faculty members of the Division of Professional Education.

The CAS has a number of facilities that supplement the tripartite functions of Instruction, Research, and Extension activities of the CAS faculty. These are the Center for West Visayan Studies, the Marine Biological Station in Taklong Island, Guimaras, the CAS Language Program, the Filipino Garden, the Intra-School Broadcasting Laboratory (ISBL), Computer Laboratories, Community Outreach Program (BIDANI) - Barangay Integrated Development Approach for Nutrition Improvement of the Rural Poor, DOST-ASTHRD (Accelerated Science and Technology Human Resource Development), and the Analytical Services Laboratory.

CAS COURSES

DIVISION OF BIOLOGICAL SCIENCES

General Education Courses

Biology (Bio) – MST

1 **Understanding life.** Major biological concepts and current issues in evolution, plant and animal reproduction and development, genetics, human health and ecology. 3 units.

20 **Living with Microbes in Sickness and in Health.** The beneficial and harmful effects of microbes to humans, the historical landmarks and modern developments in microbiology. 3 units

Environmental Science (Envi Sci) – MST

10 **People and Environment.** Study of the environment, current problems and suitable options. 3 units

Molecular Biology and Biotechnology (MBB) – MST

1 **Biotechnology and You.** Historical events, processes, products, issues and concerns in modern biotechnology. 3 units

Natural Science (Nat Sci) – MST

2 **Foundations of Natural Science II.** Fundamental concepts, principles and theories of earth and life sciences. 3 units

Science, Technology and Society (STS) – MST

40 **Science, Technology and Society.** The analysis from historical and futuristic perspectives of the nature and role of science and technology in society and of socio-cultural and politico-economic factors affecting the development of science and technology with emphasis on Philippine setting. 3 units

Undergraduate Courses

Biology (Bio)

10 **General Biology.** Basic aspects and principles of Biology with emphasis on microorganisms and parasites. 5 units (3 lec, 6 lab)

11 **Fundamentals of Biology I.** The fundamentals of Biology from the molecular and cellular levels up to organ systems of organization, except the reproductive system. 5 units (3 lec, 6 lab). Prerequisite: Chem 11

12 **Fundamentals of Biology II.** The fundamentals of Biology including the reproductive system, developmental biology, genetics, systematics, evolution and ecology. 5 units (3 lec, 6 lab). Prerequisite: Bio 11

100 **Biotechnique.** Collection and preparation of plant and animal materials for microscopic study; museum methods; scientific illustrations. 3 units (1 lec, 6 lab). Prerequisite: Bot 10 and Zoo 10, or Bio 12

120 **General Microbiology.** Taxonomy, morphology, ecology and economic value of microorganisms; microbiological techniques. 3 units. Prerequisite: Bio 12 and Chem 31; or Bot 10 or Zoo 10, and Chem 31.

120.1 **General Microbiology Laboratory.** 2 units (6 lab). Prerequisite: Must be preceded or accompanied by Bio 120

140 **Elementary Genetics.** Principles of heredity and variation. 3 units. Prerequisite: Bio 12, Chem 40 and Bio 180, or Bot 10 or Zoo 10, Chem 40 and Bio 180

140.1 **Elementary Genetics Laboratory.** 1 unit. (3 lab) Prerequisite: Must be preceded or accompanied by Bio 140

150 **Introduction to Molecular and Cell Biology.** Principles of cell biology. 3 units. Prerequisite: Chem 40 or Consent of the Instructor

151 **Environmental Management.** Principles of environmental management; technological development and activities affecting the environment and pertinent case studies. 3 units. Prerequisite: Bio 150 (Introduction to Molecular and Cell Biology) or COI.

152 **Principles of Molecular Biology and Biotechnology.** Principles of molecular biology and its application in biotechnology. 4 units (3 lec, 3 lab). Prerequisite: Chem 40, Bio 150

160 **Ecology.** Study of the principles governing the relationships of organisms with their environment, the productivity and energy flow in ecosystems, and change and development of these ecosystems. 3 units. Prerequisite: Taxonomy course

160.1 **Ecology Laboratory.** 2 units. Prerequisite: Bio 160

180 **Statistical Methods in Biology.** 3 units (2 lec, 3 lab). Prerequisite: Math 11 or equivalent.

189 **Technical Writing in Biology.** Preparation and writing of scientific papers including papers for oral presentation as well as ethics, rights and permission. 3 units. Prerequisite: Senior standing

195 **Biological Evolution.** Theories, principles and mechanisms of evolution. 3 units. Prerequisite: Bio 140

196 **Seminar in Biology.** 1 unit (may be repeated for an additional 1 unit). Prerequisite: Senior standing.

199 **Research in Biology.** 3 units. Prerequisite: Senior standing.

Botany (Bot)

10 **General Botany.** The structure, function, classification, heredity and evolution of plants. 5 units (3 lec, 6 lab).

104 **Algae, Fungi and Lichens.** Evolutionary morphology, classification and ecology. 5 units (3 lec, 6 lab). Prerequisite: Bot 10 or Bio 12 or consent.

111 **Plant Morphoanatomy and Diversity** Developmental patterns, morphoanatomy, evolution and taxonomy of Kingdom Plantae. 3 units. Prerequisite: Bot 10 or equivalent

111.1 **Plant Morphoanatomy and Diversity Laboratory.** 2 units (6 lab). Prerequisite: Bot 10 or equivalent

121 **Elementary Plant Physiology.** Lectures and laboratory dealing with the fundamental aspects of the activities of plants, such as plant nutrition, absorption and translocation of materials, growth, movement and reproduction. 5 units (3 lec, 6 lab). Prerequisite: Bot 10 or Bio 12 or equivalent, Physics 21 or equivalent, and Chem 40.

182 **Economic Botany.** Economic plants and plant products. 3 units. Prerequisite: Bot 10 or Bio 12

Environmental Science (ENS)

101 **Introduction to Environmental Science.** The course will deal primarily with some basic principles of ecology and the following environmental issues: population, sustainable use of renewable and nonrenewable resources, and environmental degradation due to pollution and different forms of disturbance in the ecosystem. 3 units.

110 **Environmental Impact Assessment.** The course will deal primarily with the methods used in environmental impact assessment including collection of environmental and social baseline data, impact assessment, prediction, selection of alternatives and provision of mitigating measures and the preparation of an environmental impact statement. 3 units. Prerequisite: ENS 101

120 **Biological Resource Management** Methods and approaches in the conservation and management of renewable and nonrenewable resources including biodiversity and land use. 3 units. Prerequisite: ENS 101, Geol 11

Marine Biology (MB)

110 **Marine Plants.** Morphology, taxonomy and economic importance. 3 units (2 lec, 3 lab). Prerequisite: Bot 10 or Bio 12.

111 **Marine Invertebrates.** Morphology, taxonomy and ecology of marine invertebrates. 5 units (3 lec, 6 lab). Prerequisite: Zoo 10.

112 **Marine Vertebrates.** Morphology, taxonomy and ecology of marine vertebrates. 5 units (3 lec, 6 lab). Prerequisite: Zoo 10 or Bio 12.

114 **Marine Plankton.** Morphology, taxonomy and distribution. 3 units (1 lec, 6 lab). Prerequisite: MB 111 or equivalent.

131 **Marine Animal Embryology.** Basic principles and development in representative forms. 5 units (3 lec, 6 lab). Prerequisite: MB 111 and 112 or their equivalents.

161 **Biological Productivity of the Sea.** Marine primary productivity and the factors affecting it; energy transfers in different trophic levels of the food chain; techniques in productivity measurements. 5 units (3 lec, 6 lab). Prerequisite: Senior standing.

Microbiology (MCB)

101 **Advanced Microbiology.** Principles and techniques for the morphological, cultural and physiological characterization of selected groups of microorganisms. 3 units (1 lec, 6 lab). Prerequisite: MCB I (General Microbiology).

120 **Microbial Physiology.** Physiological processes in microorganisms including a study of structure, energy, production, macromolecular biosynthesis, and nutrition and growth. 3 units. Prerequisites: MCB I (General Microbiology) and Chem 160 (Introductory Biochemistry).

150 **Microbial Ecology.** An introduction to the basic principles of microbial ecology; interrelationships of bacteria, fungi, algae and protozoa in natural systems. 3 units (2 lec, 3 lab). Prerequisite: MCB I (General Microbiology).

160 **Industrial Microbiology.** Microorganisms, principles and processes involved in industrial fermentation. 3 units. Prerequisite: MCB I (General Microbiology) and Chem 160 (Introductory Biochemistry).

Public Health (PH)

101 **Health Challenges in Island Contexts.** Introduction into health concepts and determinants of health within island contexts from a national and global perspective. 3 units.

121 **Gross and Microscopic Anatomy.** Dissection of the entire human body. The histology of tissues and organs using loaned collection of prepared slides. 5 units (3 lec, 6 lab). Prerequisite: Zoo 102 and 102.1

122 **General Pathology.** Basic cellular and structural changes occurring in diseases and how these affect functions of organs and systems. A thorough training on laboratory techniques and procedures is also given. 5 units (3 lec, 6 lab). Prerequisite: PH 121

131 **Physiology.** Fundamentals of human physiology. 3 units (2 lec, 3 lab). Prerequisite: Zoo 102, 102.1 and Chem 31, 31.1.

141 **Biostatistics for Public Health.** Application of basic statistical techniques commonly used in the analysis of public health and biomedical data. The course also includes the use of computers for data processing and analysis and provides students with hands on experience in the application of commonly used software packages. 4 units (2 lec, 6 lab). Prerequisite: Math 11.

147 **Genetics.** The principles of genetics and their application at the individual and community levels. 2 units. Prerequisite: Senior standing.

151 **Principles of Microbiology.** Basic properties of bacteria, viruses and fungi and basic concepts of immunology. 4 units (2 lec, 6 lab). Prerequisite: Chem 28/28.1 and 31/31.1.

152 **Medical and Public Health Microbiology.** Bacteria, viruses, and fungi of medical importance with emphasis on characteristics useful in isolation and identification, capacity to produce disease, distribution and propagation. 5 units (3 lec, 6 lab). Prerequisite: PH 151.

161 **Human Biochemistry.** Fundamentals of human biochemistry. 4 units (3 lec, 3 lab). Prerequisite: Chem 31 and 31.1.

162 **Nutrition.** Nutrients and nutritive factors essential to health. 3 units (2 lec, 3 lab). Prerequisite: Chem 28 and 28.1, PH 131 and 161.

166 **Clinical Chemistry.** Chemical analysis of biological specimens. 4 units (2 lec, 6 lab). Prerequisite: PH 162.

172 **Medical Helminthology and Protozoology.** General principles of parasitism as illustrated by the helminthic and protozoan parasites of man and their relation to human disease. 4 units (2 lec, 6 lab). Prerequisites: PH 121, 131, 161.

175 **Environmental Health.** Environmental factors affecting health and disease. Principles and methods of environmental control and modification of the environment for the prevention of disease and the promotion of health. Laboratory determination and techniques used in the physical, chemical and biologic examinations of water and wastewater. 3 units (2 lec, 3 lab). Prerequisite: PH 152 and 172.

177 **Medical Entomology.** Morphology, biology and control of anthropods infecting man. 3 units (2 lec, 3 lab). Prerequisite: PH 172.

180 **Epidemiology.** Application of the basic principles and methods of epidemiology for the identification and control of diseases of public health importance. The course provides the students practical experiences involving the application of microcomputer packages in the analysis of epidemiological data. 3 units (2 lec, 3 lab). Prerequisite: PH 141, 152, 172 and 175.

184 **Clinical Microscopy.** Microscopic and macroscopic examinations of biological specimens, including hematology, bloodbanking, urine and other body fluid analysis and exfoliative cytology. 5 units (3 lec, 6 lab). Prerequisites: PH 122, 152, 172.

186 **Public Health Administration and Health Education.** The structure of official and non-official agencies or institutions participating in public health administration. The principles and methods of public health education are emphasized. 3 units. Prerequisite: PH 152, 172 Co-requisite: PH 175.

195 **Public Health Practice.** Application of concepts, principles and methods in public health in a community and hospital setting. 5 units. Prerequisite: PH 141, 152, 162, 172, 180, 184, 186

196 **Seminar.** 1 unit. Co-requisite: PH 199

199 **Special Studies and Research.** Not to exceed 3.0 units. Prerequisite: PH 162, 180, 184, and 186.

Zoology (Zoo)

10 **Fundamentals of Zoology.** Basic aspects and principles of Zoology. 5 units (3 lec, 6 lab)

102 **Comparative Anatomy of Vertebrates.** Phylogenetic development of the organ systems in the various classes of vertebrates. 3 units. Prerequisite: Zoo 10.

102.1 **Comparative Anatomy of Vertebrates Laboratory.** 2 units (6 lab). Prerequisite: Must be accompanied or preceded by Zoo 102.

106 **General Histology.** Structures of representative invertebrate and vertebrate tissues. 5 units (3 lec, 6 lab). Prerequisite: Zoo 10.

111 **Invertebrate Zoology.** General survey of the invertebrates. 3 units. Prerequisite: Zoo 10.

111.1 **Invertebrate Zoology Laboratory.** 2 units (6 lab). Prerequisite: Must be preceded or accompanied by Zoo 111.

113 **Parasitology.** Origin and degree of parasitism, structural peculiarities of parasites, life cycles and host-parasite relationship. 5 units (3 lec, 6 lab). Prerequisite: Zoo 102 or Zoo 111.1

120 **Animal Physiology.** Principles of functional zoology with emphasis on physiological adaptations. 3 units. Prerequisite: Senior standing or consent.

120.1 **Animal Physiology Laboratory.** 2 units (6 lab). Prerequisite: Must be preceded or accompanied by Zoo 120.

131 **Introduction to Developmental Biology of Animals.** Principles of development, mechanisms of cellular differentiation, specification of cell fate and embryonic axes, as well as cellular interactions during organogenesis. 3 units. Prerequisite: Zoo 102 and Bio 150.

131.1 **Introduction to Developmental Biology of Animals Laboratory.** 2 units (6 lab). Prerequisite: Must be accompanied or preceded by Zoo 131.

132 **Vertebrate Embryology.** Processes and theories of development of representative vertebrates. 5 units (3 lec, 6 lab). Prerequisite: Zoo 102.

Graduate Courses

Biology (Bio)

201 **Morphogenesis.** General principles of growth and differentiation involved in the development of the adult form of plants and animals; effects of physical and biological factors in the development of the organism. 3 units (2 lec, 3 lab). Prerequisite: COI

206 **Advanced Histology.** Structure and chemical properties of the different types of tissues, including handling, preservation, and staining of biological specimens for histological and immuno-histochemical studies. 3 units (2 lec, 3 lab) Prerequisite: COI

211 **Critique of Systematics.** 3 units

220 **Advanced Cell Biology.** Cell morphology and physiology with emphasis on the dynamics of cell differentiation. 3 units. Prerequisite: Bio 150 or COI

221 **Advanced Animal and Plant Physiology.** Comparative physiological mechanisms in animals and plants with emphasis on the latest experimental techniques. 3 units.

223 **Plant Growth and Development.** Physiology of growth and development with special reference to growth promoting substances. 3 units (2 lec, 3 lab). Prerequisite: Bio 121/COI

228 **Physiology of Animal Reproduction.** A study of the reproductive process and the relation of hormones to reproduction. 3 units. Prerequisite: Bio 122/COI

237 **Differentiation in Embryonic Systems.** Concepts and mechanisms underlying specialization of cells during early development. 3 units. Prerequisite: Bio 130 (Developmental Biology)

239 **Research in Developmental Biology.** 2 units (6 lab). Prerequisite: COI

240 **Advanced Genetics.** The gene in inheritance, mutation and related processes. 3 units. Prerequisite: Bio 140 or consent.

241 **Biogeography.** The geographical distribution of plants and animals; mechanisms and modes of dispersal; dynamic changes of floral and faunal distribution patterns; continental and island biogeography; current theories on the origin of existing distribution patterns. 3 units. Prerequisite: Bio 142/COI

242 **Biosystematics.** Discussion on the species concept and speciation problems; variation; modes and measures of selection, and evolutionary mechanisms using the results on the studies of genetics, ecology, ethology, systematics, physiology, biogeography and historical geology. 3 units. Prerequisite: Bio 142/COI

245 **Advances in Developmental Biology.** Diverse topics in the area of developmental biology with emphasis on techniques used in research and the most recent studies on the mechanism of animal and plant development. 3 units. Prerequisite: Zoo 132, Bot 119, or equivalent, or COI

250 **Advanced Cell and Molecular Biology.** Eukaryotic cell structure and function, cell division and differentiation, membrane structure and transport, cellular organelles and the cytoskeleton, and cell communications; experimental approaches in the study of the cell and related cellular processes. 3 units. Prerequisite: Bio 150 or COI.

260 **Advanced Ecology.** 3 units. Prerequisite: Bio 160

263 **Terrestrial Ecology.** Composition and dynamics of terrestrial communities. 3 units (2 lec, 3 lab) Prerequisite: Bio 160/ COI

291 **Experimental Design and Statistical Analysis.** 3 units. Prerequisite: COI

296 **Seminar.** 1 unit (may be taken twice.) Prerequisite: COI

298 **Special Topics in Biology.** 3 units. Prerequisite: COI

299 **Practicum in Biological Research.** Research work with faculty researchers in different fields of biology for exposure to and hands-on research experience in these fields. 3 units (160 hours) Prerequisite: Completed course work.

300 **Master's Thesis.** 6 units. Prerequisite: Bio 299.

Botany (Bot)

202 **Advanced Phycology.** 3 units. Prerequisite: Bot 102

209 **Methods and Principles of Plant Taxonomy.** Procedures and recent developments in systematic botany. 3 units. Prerequisite: Bot 109 or consent of instructor.

210 **Cytology.** 3 units. Prerequisite: Bot 10

Environmental Biology (EB)

205 **Ecological Physiology.** Analysis of physiological responses and adaptations of animals and plants to their environments with emphasis on physiological and biochemical mechanisms. 3 units (2 lec, 3 lab) Prerequisite: Bio 160 or Bio 260 or MS 250

251 **Environmental Management.** Introduction to concepts and applications of different methods and approaches used in environmental management. 3 units. Prerequisite: Bio 260 or equivalent or COI

Environmental Science (ENS)

203 **Advanced Aquatic Ecology.** Recent studies in aquatic environment – organism interactions; adaptive mechanisms; species displacement and extinction; modern approaches in the evaluation of production rates. 3 units. Prerequisite: COI

204 **Issues in Aquatic Resources Management.** Problems and issues in the use of aquatic resources with emphasis on the Philippine situation. 3 units.

Microbiology (MCB)

202 **Biology of Microorganisms.** General principles of microbial cell structure and function, the classification and diversity of microorganisms, biochemical processes in cells, and the genetic basis of microbial growth and evolution. 3 units (2 lec, 3 lab). Prerequisite: COI

204 **Methods in Experimental Mycology.** Techniques and experimentation in fungal growth, development and differentiation. 3 units (2 lec, 3 lab). Prerequisite: Bot 103 or equivalent / COI

220 **Physiology of Bacteria.** Physiological processes in bacteria including study of bacterial variation and population dynamics. 3 units (2 lec, 3 lab). Prerequisite: MCB 101 or MCB 120

240 **Determinative Bacteriology.** Bacterial identification, cultivation of representative groups of bacteria from their natural habitats. 3 units (1 lec, 6 lab). Prerequisite: MCB 101.

250 **Microbial Ecology.** Fundamentals and applications of the ecology of microorganisms. 3 units (2 lec, 3 lab). Prerequisite; Bio 120 or equivalent / COI

275 **Tropical Fish Health.** Principles of infection and infection processes, therapy and prophylaxis, pathogens common in aquaculture systems in the tropics and possible management; emphasis on shellfish and finfishes. 3 units (2 lec, 3 lab). Prerequisite: COI

281 **Aquatic Microbiology.** Taxonomy, distribution, and abundance of aquatic microorganisms and their roles in nature. 3 units (2 lec, 3 lab). Prerequisite: Bio 120 or equivalent / COI

287 **Industrial Microbiology.** Isolation and culture of economically important bacteria, fungi, algae and lichens, their biochemical activities and uses. 3 units. Prerequisite: Bio 112 / Bio 113 / Bio 120

Marine Biology (MB)

212 **Biology of Tropical Marine Vertebrates.** Morphology, classification and ecology of tropical marine vertebrates with emphasis on reef fishes. 3 units (2 lec, 3 lab). Prerequisite: COI

213 **Biology of Marine Invertebrates.** Classification, morpho-anatomy, reproduction, evolution and ecology of marine invertebrates with focus on metazoan macroinvertebrates for advanced students. 3 units (2 lec, 3 lab). Prerequisite: Zoo 111 or equivalent / COI

221 **Physiology of Marine Organisms.** General accounts of marine organisms which will describe their structure and function and development and their physiological adaptation to marine environment. 3 units (2 lec, 3 lab). Prerequisite: COI

250 **Management of Coastal and Marine Resources.** Resource allocation, management and conservation of coastal and marine environment for sustainable development. 3 units. Prerequisite: Bio 10 or equivalent / COI

261 **Marine Plant Farming.** Utilization, cultivation and culture, and ecology of marine plants. Current environmental issues regarding marine plant farming. 3 units (2 lec, 3 lab). Prerequisite: COI

262 **Marine Phytoplankton.** Biology, distribution, diversity, ecology of marine phytoplankton and their contribution to marine productivity. 3 units (2 lec, 3 lab). Prerequisite: COI

Marine Science (MS)

250 **Marine Ecology.** Dynamics of marine systems with emphasis on Philippine coastal environments. 3 units. Prerequisite: Bio 160/ COI

255 **Coral Reef Ecosystems.** Structure, function, and ecological significance of coral reefs and their major living components. 3 units. Prerequisite: COI

256 **Marine Algae.** Taxonomy, morphology, and ecology of marine benthic algae. 3 units. Prerequisite: Bio 111

270 **Biochemistry of Marine Organisms I.** Structure-function relationships, general aspects of metabolism and comparative biochemistry of marine organisms. 3 units. Prerequisite: Chem 40 or COI

271 **Biochemistry of Marine Organisms II.** Thermodynamics, kinetics, and enzyme reaction mechanics as applied to the study of metabolism in marine organisms. 3 units. Prerequisite: MS 270 or COI

297 **Special Topics in Marine Science.** 3 units. Prerequisite: COI

298 M**ethods in Marine Science.** Specialized techniques for the study of marine sciences. 3 units. Prerequisite: COI

Zoology (Zoo)

213 **Advanced Medical Parasitology.** Advances in the identification and diagnosis of parasitic diseases based on morphology and molecular markers, their pathogenesis, epidemiology, host immunological responses, and control and prevention; current experimental laboratory methods in the study of medical parasitology. 3 units (2 lec, 3 lab). Prerequisite: An undergraduate subject in parasitology or equivalent.

225 **Endocrinology.** Anatomy and functional relationships of the endocrine glands in vertebrates. 3 units. Prerequisite: Chem 160 and 160.1 / COI

227 **Physiology of Reproduction.** A study of the reproductive process and the relation of hormones to reproduction. 3 units. Prerequisite: Zoo 120 or COI

DEPARTMENT OF CHEMISTRY

General Education Course

Natural Science (Nat Sci) – MST

1 **Foundations of Natural Science I.** Fundamental concepts, principles and theories of physics and chemistry. 3 units.

Undergraduate Courses

Chemistry (Chem)

11 **General and Inorganic Chemistry.** The essentials of general inorganic college chemistry. The fundamental principles of the subject and the practical application to the industries and everyday life. 5 units (3 lec, 6 lab). Prerequisite: Math 11 or equivalent.

14 **Elementary Inorganic and Organic Chemistry.** Certain fundamental principles and the more important applications of inorganic and organic chemistry for the biological field, both pure and applied. 5 units (3 lec, 6 lab). Prerequisite: Math 11 or equivalent.

16 **General Chemistry I.** Fundamentals of Chemistry. 5 units (3 lec, 6 lab). Corequisite: Math 11 or equivalent.

17 **General Chemistry II.** Continuation of Chem 16. 5 units (3 lec, 6 lab). Prerequisite: Chem 16 and Math 14 or equivalent.

23 **Inorganic Analytical Chemistry.** Principles and techniques of the qualitative and quantitative analyses of inorganic substances. 5 units (3 lec, 6 lab). Prerequisite: Math 14 or equivalent and Chem 11.

28 **Quantitative Inorganic Analysis.** Principles and techniques of gravimetric and volumetric methods; colorimetric and potentiometric methods. Stoichiometry. Analysis of substances and simple mixtures. 3 units. Prerequisite: Chem 17.

28.1 **Quantitative Inorganic Analysis Laboratory.** 2 units (6 lab). Prerequisite: To be accompanied or preceded by Chem 28.

31 **Elementary Organic Chemistry.** Introduction to modern theories of inorganic chemistry. Correlation of structure with properties of organic compounds. Basic laboratory techniques in elementary organic chemistry. 3 units. Prerequisite: Chem 11 or equivalent; for non- majors

31.1 **Elementary Organic Chemistry Laboratory.** 2 units (6 lab). Prerequisite: To be accompanied or preceded by Chem 31.

33 **Organic Chemistry I.** Introduction to modern theories in organic chemistry. Discussion of electronic and structural effects on reaction mechanism. Basic laboratory techniques in elementary organic chemistry. 3 units. Prerequisite: Chem 17.

33.1 **Organic Chemistry I Laboratory.** 2 units (6 lab). To be accompanied or preceded by Chem 33.

34 **Organic Chemistry II.** An integrated application of modern theories in organic chemistry to physical properties and chemical reactivity of organic compounds. Laboratory synthesis and qualitative analysis. 3 units. Prerequisite: To be accompanied or preceded by Chem 33 and 33.1.

34.1 **Organic Chemistry II Laboratory.** 2 units (6 lab). Prerequisite: To be accompanied or preceded by Chem 34.

40 **Elementary Biochemistry.** The Chemistry of food and nutrition. 3 units. Prerequisite: Chem 14.

40.1 **Elementary Biochemistry Laboratory.** 2 units (6 lab). Prerequisite: To be accompanied or preceded by Chem 40.

115 **Inorganic Chemistry.** A detailed study of the atomic and molecular structures of elements, compounds/ complexes and the effect of these structural aspects on their physical and chemical properties. 3 units. Prerequisite: Chem 117.

116 **Physical Chemistry I.** Properties of gases, liquids and solutions. Principles of thermodynamics and chemical equilibria. 5 units (3 lec, 6 lab). Prerequisite: Chem 23, Physics 21, and Math 100 or its equivalent.

117 **Physical Chemistry II.** Applications of thermodynamics to chemical and phase equilibria, electrochemistry, chemical kinetics and the crystalline state. 5 units (3 lec, 6 lab). Prerequisite: Chem 116.

126 **Instrumental Methods.** Principles and techniques of instrumental chemical analysis such as spectrophotometry, polarography, potentiometric titrations, coulo-metric methods, electrodeposition and chromatography. 5 units (3 lec, 6 lab). Prerequisite: Chem 28 and 31/34.

145 **Biochemistry.** An advanced treatment of structure-function relationship of biomolecules and biochemical mechanisms. 3 units. Prerequisite: Chem 28 and 34.

145.1 **Biochemistry Laboratory.** 2 units (6 lab). Corequisite: Chem 145.

153 **Physical Chemistry II.** Chemical thermodynamics. 3 units. Prerequisite: Math 54/equivalent, Chem 26/26.1 or Chem 28/28.1.

181 **Applied Chemistry.** Special topics in analytical chemistry as applied to the needs of students majoring in sugar chemistry, fisheries, food science, and nutrition. 3 units (1 lec, 6 lab). Prerequisite: Chem 23 and Chem 31.

182 **Polymer Chemistry.** Introduction to classification, reactions and characterization and synthesis of polymers. 3 units. Prerequisite: Chem 34/31.

183 **The Chemistry and Processing of Sugar.** The structure and properties of sugar and chemistry of sugar processing and its by-products. 3 units. Prerequisite: Chem 34.

184 **Chemistry of Food and Food Products.** Chemical composition of foods and its effect on texture, flavor, color and nutritive value. 3 units (2 lec, 3 lab). Prerequisite: COI.

185 **Chemistry of Natural Products.** Chemistry of major classes of secondary metabolites. 3 units. Prerequisite: Chem 145 and 145.1.

186 **Aquatic Chemistry.** Chemical composition of natural water, chemical equilibria and physical properties of natural water and aqueous electrolytic solution. 3 units. Prerequisite: Chem 17.

187 **Soil Chemistry.** Nature and composition of soils; physico-chemical properties and reactions; chemical processes including ionic equilibria. 3 units Prerequisite: Chem 17.

188 **Chemical Toxicology.** Introduction to toxicological concepts, reaction mechanisms, and regulatory policies in the use of chemicals in the environment. 3 units. Prerequisite: Chem 145, Bio 120/ COI.

189 **Fundamentals of Environmental Chemistry.** Principles of chemistry relevant to the study of environment; study of the nature and effects of chemical interactions of domestic and industrial wastes on natural systems; understanding of chemical phenomena causing changes in the quality of the environment. 3 units (2 lec, 3 lab). Prerequisite: Chem 34 and 34.1.

190 **Seminar.** Seminar. 1 unit. Prerequisite: Senior standing.

191 **Practicum.** Internship in chemical industries per area of specialization. 5 units (minimum of 200 hrs). Prerequisite: Consent of adviser.

199.1 **Research.** Research. 3 units. Prerequisite: Senior standing.

200 **Undergraduate Thesis.** 3 units. Prerequisite: Senior standing.

Geology (Geol)

11 **Principles of Geology.** Earth materials; nature and consequences of geologic processes. 3 units.

Graduate Courses

Chemistry (Chem)

204 **Marine Chemistry.** Selected topics in the chemistry of the marine environment. 3 units.

210 **Chemometrics.** Chemistry problems; statistical data analysis as applied to the collection, analysis and interpretation of chemical data; and common computer software as tools in data handling. 3 units.

213 **Selected Topics in Organic Chemistry.** Modern theories in organic chemistry, structures, properties and applications of organic compounds. 3 units.

217 **Dynamics of Chemistry.** Properties of gases and liquids, the laws of thermodynamics and equilibria in physical and chemical changes including electrochemistry and chemical kinetics. 3 units.

217.1 **Applications of the Dynamics in Chemistry.** The laboratory component of Chem 217. 2 units (4 lab). Corequisite: Chem 217

224 **Selected Topics in Biochemistry.** Structure and functions of proteins, carbohydrates, lipids, and nucleic acids and their role in biological processes. 3 units. Prerequisite: Chem 217

225 **Advanced Inorganic Chemistry.** Structure of atoms and periodic trends as well as symmetry and point group; organometalic chemistry, and the descriptive chemistry of transition elements. 3 units. Prerequisite: Chem 217

237 **Selected Topics in Physical Chemistry.** Principles and applications of thermodynamics, chemical equilibria, thermochemistry, chemical kinetics, electrochemistry, nuclear chemistry and quantum chemistry. 3 units. Prerequisite: Chem 217

238 **Selected Topics in Analytical Chemistry.** Important classical and modern analytical methods, the theory and practice in problem solving using these analytical techniques. 3 units. Prerequisite: Chem 217

238.1 **Selected Topics in Analytical Chemistry Laboratory.** Basic quantitative skills and techniques in performing chemical analysis in laboratory. 2 units (4 lab) Prerequisite: Chem 217 Corequisite: Chem 238

247 **Molecular Biochemistry.** Behavior of biologically active substances and mechanism of enzymic action in terms of electronic theory. 3 units. Prerequisite: Chem 240 or COI.

272 **Environmental Chemistry.** Chemistry applied to the study of the environment, its pollution and control. 3 units.

274 **Separation and Purification Techniques.** Practical applications of various methods of separation and purification techniques, including distillation, solvent extraction and chromatographic separation techniques. 3 units (6 lab). Prerequisite: Chem 217

290 **Graduate Seminar.** Recent trends in researches and techniques in Chemistry. 1 unit. Prerequisite: Consent of adviser.

296 **Special Problem in Chemistry.** An independent graduate research work on any specialized field of chemistry with experimental (practical) component that will apply the knowledge and skills obtained by the student. 4 units. Prerequisite: Student has completed 21 units of course requirements or consent of program adviser.

DIVISION OF HUMANITIES

General Education Courses

Communication (Comm) - AH

1 **Communications Skills.** The development of communicative competence in English, with emphasis on reading, writing, and listening skills. 3 units.

2 **Communication Skills.** The development of more advanced language skills in logical thinking, critical reading and effective writing. 3 units.

3 **Speech Communication.** The development of communicative competence with aural and oral skills in various communication situations. 3 units.

English (Eng) – AH

2 **Read Right, Write Right.** The development of reading and writing proficiencies using materials in the varied disciplines. 3 units.

Humanities (Hum) – AH

1 **Art, Society, and the Individual.** A study of visual arts and music as products of the creative imagination in dynamic interaction with society. 3 units.

Literature (Lit) – AH

1 **Literatures of the Philippines.** Philippine Literature in Spanish (written by Filipinos), English, Filipino, and in other regional languages translated into English or Filipino. 3 units.

2 **Literatures of the World.** Selected readings in classic world literature revolving around the themes of human identity, purpose and destiny. 3 units.

3 **Literature, Society and the Individual.** A study of various literary genres as the imaginative expression of the individual writer's experience and the society's values and ideals. 3 units.

Undergraduate Courses

Broadcast Communication (BC)

100 **Introduction to Broadcasting.** Scope and significance of broad casting; areas, opportunities and activities of the industry; ethical standards in broadcasting; world systems and laws of broadcasting. 3 units. Prerequisite: Junior standing.

130 **Program Planning and Building.** Concepts and methods of broadcast programming, program building and promotion. 3 units. Prerequisite: Senior standing or Consent

Communication and Media Studies (CMS)

11 **Dynamics of Human Communication.** The psychology of human communication in various contexts; theories, concepts and processes of person-to-person communication and their application. 3 units.

100 **History of Media Communication** The history of the different forms of media communication and its role in the cultural and social context in society. 3 units

101 **Introduction to Media Communication.** The nature, function, operation and role of mass media in modern society. 3 units.

102 **Theories in Media Communication.** A closer look at various theories about messages themselves, as well as the various contexts in which they occur: interpersonal, group and public communication, organizational communication, mass communication and intercultural communication. 3 units. Prerequisite: CMS 101

103 **Media Laws and Ethics.** The principles underlying mass media freedom; statutes and laws governing operation in the media industry; ethics and social responsibility. 3 units. Prerequisite: CMS 101

104 **Media and the Community.** Social responsibility of the press, radio, television, and theater as media of information, education, entertainment and industry. 3 units. Prerequisite: CMS 102

105 **Technologies in Media Communication.** Technologies in communication and its effects on the way people communicate. 3 units. Prerequisite: CMS 100

107 **Fundamentals of Communication Planning.** The principles and strategies in planning the process of communication. 3 units. Prerequisite: CMS 102

110 **Development Media.** Cultural and educational aspects of communication in the non-mainstream and popular media forms. 3 units. Prerequisite: CMS 100

111 **Audio and Video Procedures and Techniques.** Techniques and procedures in the radio and television studios. 3 units (2 lec, 3 lab).

112 **Radio Speech and Performance.** Voice skills for working behind the microphone; performance skills for various audio productions. 3 units (2 lec, 3 lab). Prerequisite: CMS 111

113 **Radio Writing.** Principles and techniques in writing messages intended for the ear; preparation of scripts for various forms of radio programs. 3 units. Prerequisite: CMS 111

115 **Radio Production and Direction.** Production and direction of radio programs in various formats. 3 units (2 lec, 3 lab). Prerequisite: CMS 113

121 **Basic Television Production and Direction.** Principles, practices, and techniques in studio production and direction of television programs. 3 units (2 lec, 3 lab). Prerequisite: CMS 111

122 **Television Speech and Performance.** Speech communication and performance skill for television. 3 units (2 lec, 3 lab). Prerequisite: CMS 111

123 **Fundamentals of TV Writing.** Basic techniques for writing scripts for television. 3 units. Prerequisite: CMS 111

125 **Advanced Television Production and Direction.** Preparation of various forms of television programs in studio and field locations, from pre-production to postproduction stages. 3 units (2 lec, 3 lab). Prerequisite: CMS 121

131 **Writing News.** Elements of news, methods of gathering news, organizing and writing news stories. Practical applications of principles. 3 units (2 lec, 3 lab). Prerequisite: CMS 100

132 **Writing Views.** Reporting in depth, editorial and column writing with emphasis on a development orientation; investigating anomalies in the government; critical analysis of investigative reports here and abroad. 3 units (2 lec, 3 lab). Prerequisite: CMS 131

134 **Procedures and Techniques in Print Media.** The principles of copyediting; headline writing; simple layout; planning, evaluating and writing news coverage. 3 units (2 lec, 3 lab). Prerequisite: CMS 131

135 **Contemporary and Online Publishing.** Theory and practice of writing, preparation and processing of informative publications, including mechanics of layout, copy reading, copy fitting and the use of computers; editing and publication of popular articles. 3 units (2 lec, 3 lab). Prerequisite: CMS 134

136 **Community Journalism.** Specialized reporting and writing in areas of community, health, nutrition, environment, education, and local government for print, radio and TV media. 3 units (2 lec, 3 lab). Prerequisite: CMS 134

137 **Photojournalism.** Basic principles, processes and application of photographic coverage of news events; vital issues pertaining to photojournalism, particularly on ethics, rights and responsibilities. 3 units (2 lec, 3 lab)

141 **Print Advertising.** Principles of visual communication; type and rendering in black and white; space, cropping; processes of print production; finished art and bromide production; artwork preparation and typography as design. 3 units (2 lec, 3 lab). Prerequisite: CMS 111

142 **Broadcast and Online Advertising.** Concept, design and production of advertisements for television, radio and the internet to include art direction, casting, budgeting, preproduction, production and postproduction. 3 units (2 lec, 3 lab). Prerequisite: CMS 111

143 **Media Planning and Evaluation.** Principles and objectives behind media space and time buying. 3 units. Prerequisite: CMS 111

144 **Planning the Advertising Campaign.** Processes in the planning stage of the advertising campaign. 3 units (2 lec, 3 lab). Prerequisite: CMS 143

145 **Implementing the Advertising Campaign.** Creation of an advertising campaign based on a product or service; importance of pre-testing and post-testing of a campaign material. 3 units (2 lec, 3 lab). Prerequisite: CMS 144

154 **Program Design in Broadcasting.** Planning of productions for radio and television including conceptualization of radio and television programs, preparation of production plans, and pitching. 3 units. Prerequisite: CMS 111

159 **Broadcast Programming and Management.** Fundamentals of management, programming, operation, and regulation of broadcast stations. 3 units. Prerequisite: Senior Standing

191 **Media Internship.** Supervised training in at least one media organization involved in broadcasting, journalism and advertising. 3 units (200 hours) Prerequisite: Junior Standing

196 **Media Appreciation and Criticism.** Theories and methodologies in the field of media appreciation and criticism with concentration on the dominant critical perspectives that have contributed to the understanding and appreciation of media and its role in society. 3 units. Prerequisite: CMS 102

197 **Media Research and Design.** Research approaches in communication and media studies. 3 units. Prerequisite: CMS 101 and Junior Standing

198 **Contemporary Issues in Media Communication.** Concepts relating to information policy and the social construction of technology to a range of issues and practical problems. 3 units. Prerequisite: CMS 191

200 **Undergraduate Thesis.** 3 units. Prerequisite: CMS 197

Comparative Literature (CL)

51 **Survey of World Literature.** Reading of short masterpieces and selections from world writers excluding English and American. 3 units. Prerequisite: English III

101 **Literature and the Behavioral Sciences.** 3 units.

105 **Literature and the Other Arts.** 3 units

121 **Literary Criticism.** A study of the elements and principles of literary criticism. 3 units. Prerequisite: English III

131 **Masterpieces of Ancient Egyptian, Hebraic, Arabic and Persian Literature.** (in English translation) 3 units. Prerequisite: Eng 4 or CL 51 or consent

132 **Masterpieces of Ancient Greek and Roman Literature.** (in English translation) 3 units. Prerequisite: Eng 4 or CL 51 or consent

133 **Masterpieces of the Literature of Medieval, Renaissance, and Modern Europe.** (in English translation) The leading non-dramatic works of various European lands and countries. 3 units. Prerequisite: 12 units of English, or Eng 4 or CL 51 or consent

142 **Masterpieces of the Literature of South Asia.** (in English translation) The leading works in the literature of India, Ceylon, Pakistan, and Burma. 3 units. Prerequisite: 12 units of English, or Eng 4 or CL 51 or senior college standing

143 **Masterpieces of the Literature of Southeast Asia.** (in English translation) The leading works in the literature of the countries of mainland and insular Southeast Asia. 3 units. Prerequisite: 12 units of English or senior college standing or Eng 4 or CL 51

144 **Masterpieces of the Literature of China.** The leading works in the literature of China in English translation. 3 units. Prerequisite: 12 units of English or consent or Eng 4 or CL 51

145 **Masterpieces of the Literature of Japan.** The leading works in the literature of Japan in English translation. 3 units. Prerequisite: 12 units of English or consent or Eng 4 or CL 51

151 **Philippine Literature in English.** The leading works in the literature of the Philippines written in English or available in English translation. 3 units. Prerequisite: 12 units of English or consent or Eng 4 or CL 51

181 **Modern Europe Novel.** (in English translation) Masterpieces of European novelists of contemporary period. 3 units. Prerequisite: Senior standing

183 **World Drama.** Readings and analysis of dramatic masterpieces of the world. 3 units. Prerequisite: English 4 or CL 51 or consent

191 **The Development of European Drama.** History and analysis of the drama in Europe. 3 units. Prerequisite: Senior standing or consent

192 **The Classical Tradition in Literature.** 3 units.

193 **The Romantic Tradition in Literature.** 3 units.

194 **The Modern Temper in Literature.** 3 units.

195 **Selected Topics.** 3 units (may be repeated for not more than 3 additional units)

English (Eng)

1 **Fundamentals of English.** The development of proficiency in English through intensive practice in the basic communication skills. 3 units

II **Freshman English.** The development of more advanced language skills of interpretation, criticisms and writing with reasonable competence in the longer expository forms such as essay, the scientific report and the research paper. 3 units.

III **Introduction to Literature.** The study of literary types: fiction, poetry, drama, essay and biography. Skills in communication continue to be developed through discussions, reports and papers. Readings to include English selections by Filipino and other Asian writers. 3 units.

4 **Masterpieces in World Literature.** The great literary world masterpieces representing the Asian, European and American traditions; the analysis of ideas and forms. 3 units. Prerequisite: Eng III

5 **Expository Writing.** The development of a lucid and effective expository style through a directed analytical study of the prose writing in the informal, literary-formal, and scientific styles of great thinkers. 3 units. Prerequisite: Eng II

10 **Writing of Scientific Papers.** Principles underlying the preparation and writing of scientific papers. 3 units. Prerequisite: Comm 2 and at least junior standing

11 **Technical Writing for Business.** Theory and practice in the writing of business communication, with emphasis on effective form and language in business correspondence and technical reports, such as industry studies, project feasibility studies, marketing plans, etc. 3 units.

21 **Survey of English Literature.** Survey of English literature from its beginning to the 20th century. 3 units. Prerequisite: Eng III

23 **Introduction to Shakespeare.** Ten representative plays including discussion of necessary background and problems. 3 units. Prerequisite: Eng III

41 **Survey of American Literature.** A critical appreciation of the place and influence of major American literature works. 3 units. Prerequisite: Eng III

115 **History of the English Language.** A descriptive study of the major linguistic and cultural development in the English language from old English to Modern English. An analysis of the phonologic and syntactic structure of Modern English. 3 units. Prerequisite: 12 units of English

120 **Stylistics.** Application of linguistic methods to literary study. 3 units. Prerequisite: 12 units of English

122 **From the Norman Conquest to Chaucer.** The important works of the chief Middle English writers. 3 units. Prerequisite: Eng 22 or Senior standing or consent

123 **Sixteenth Century Literature.** Elizabethan prose, poetry, and drama. 3 units. Prerequisite: Eng 22 or Senior standing or consent

124 **Seventeenth Century Literature.** Baroque and classical prose, the metaphysical and other schools of poetry, and the works of Milton (excluding the drama). 3 units. Prerequisite: Eng 22 or Senior standing or consent

125 **Dryden to Johnson.** The restoration to the pre-Romantic period; the major writers in prose and poetry. 3 units. Prerequisite: Eng 22 or Senior standing or consent

127 **Wordsworth to Scott.** The 18th century phase of the movement, the revival of romanticism from Blake to Scott. 3 units. Prerequisite: Eng 22 or Senior standing or consent

129 **The Victorians.** Major works of the more important Victorian writers. 3 units. Prerequisite: Eng 22 or Senior standing or consent

131 **Twentieth Century British Literature.** Major writers and significant literary movements in contemporary British literature. 3 units. Prerequisite: Eng 22 or Senior college standing or consent

142 **The American Heritage.** Major writers from Bryant to Whitman. 3 units. Prerequisite: Eng 41

143 **Contemporary American Literature.** Major figures from Henry James to recent writers in relation to their social and philosophical backgrounds. 3 units. Prerequisite: Eng 41

191 **Approaches to a College English Program.** Analysis of concepts and problems in college English under a general education program. 3 units. Prerequisite: Senior standing or consent, and CL 121

199 **Literary Research.** 3 units. Prerequisite: Senior standing

Filipino (Fil)

10 **Pag-uusap.** Pagbibigay ng iba't ibang gamiting pangungusap para sa iba't ibang pagkakataon. 3 units.

11 **Pagtatalakay.** Pagtatalakay ng iba't ibang gawi at ugali ng mga Filipino. Paghahambing ng mga ito sa isat' isa. 3 units . Prerequisite: Fil 10.

12 **Pagbasa at Pagsulat.** Pagpapaunlad ng kasanayan sa pagbasa at pagsulat sa Pilipino. 3 units. Prerequisite: Consent.

13 **Pagbasat at Pagsulat.** Karugtong ng Fil 12. 3 units.

20 **Panimula sa Literatura.** Iba't ibang anyo ng literatura: mga diskasyon, report at sanaysay. 3 units . Prerequisite: Fil 12 or consent

101 **Ang Sitwasyong Pangwika sa Pilipinas.** Pag-aaral at pagsusuri sa kalagayan ng Wikang Pambansa sa kasalukuyan batay sa mga pangyayaring naganap kaugnay nito noong nakaraang panahon. 3 units.

103 **Gramatika ng Wikang Pambansa.** Pag-aaral sa balangkas ng Wikang Pambansa, 3 units.

110 **Peryodismong Pilipino.** Ang kasaysayan at pag-uunlad ng peryodismong Pilipino. 3 units.

111 **Estilo.** Pag-aaral sa iba't ibang estilo ng paggamit ng Wikang Pambansa. 3 units.

121 **Malikhaing Pagsulat.** Natatanging pag-aaral at pagsasanay sa pagsulat ng iba't ibang kaanyuang pampanitikan. 3 units.

190 **Pagsasaling Wika.** Mga simulain, pamamaraan at suliranin sa pagsasalin sa Filipino. 3 units.

197 **Seminar: Mga Natatanging Suliranin sa Wika**. Pagtatalakay at pagsusuri sa mga natatanging suliranin sa wika gaya ng suliranin sa lingua franca, wikang pambansa, wikang panturo at wikang opisyal. 3 units.

199 **Pamamaraan ng Pananaliksik.** 3 units

French

10 **Elementary Grammar and Composition.** Reading and translation of easy French prose. 3 units.

11 **Elementary Grammar and Composition.** Continuation of French 10. 3 units.

Japanese

10 **Elementary Japanese I.** Basic Japanese grammar and writing systems (Hiragana, Katakana, and about 100 Kanji characters). 3 units.

11 **Elementary Japanese II.** Continuation of Japanese 10. 3 units. Prerequisite: Japanese 10

Journalism (Journ)

101 **Introduction to Journalism.** Functions, principles and standards of journalism; problems and techniques of reporting; types of news and features. 3 units. Prerequisite: 9 units of English

106 **Public Information.** Methods of gathering and disseminating public information as practiced by government, business, industrial, educational and social organizations. 3 units. Prerequisite: Journ 102.

109 **Technical Writing.** Theory and practice in preparing articles on technical subjects. 3 units. Prerequisite: Junior standing.

141 **Press and Society.** The responsibility of the press towards its own freedom, toward monopoly and competition, the rights of privacy, government interference, censorship, pressure groups, obscenity, the public interest, etc. 3 units. Prerequisite: Senior standing.

198 **Journalism Internship.** Internship program in local print media offices. 3 units. Prerequisite: minimum of 15 units of journalism.

Literature (Lit)

111 **Poetry Writing.** The principles and practice of writing poetry. 3 units. Prerequisite: Lit 3.

112 **Writing Fiction and Drama.** The principles and practice of writing the short story, novel and play. 3 units. Prerequisite: Lit 3

121 **Literary Theory and Criticism.** The theories and practice of literary criticism from the ancient Greeks down to the 20th century. 3 units. Prerequisite: Lit 3.

130 **Western Heritage I.** A survey of the literary heritage of Europe in English or Filipino translation. 3 units. Prerequisite: Lit 3.

131 **Western Heritage II.** A survey of the original works in English from English-speaking nations including England, the United States, Canada, and Australia. 3 units. Prerequisite: Lit 3.

140 **Asian Heritage.** A survey of the literary heritage of South Asia (India, Pakistan, Sri Lanka), Southeast Asia (Malaysia, Singapore, Indonesia, Burma, Thailand, Vietnam), Japan, China, and Korea, in English or Filipino translation. 3 units. Prerequisite: Lit 3.

141 **Islamic Literature in Asia.** The study of representative works from the literatures of Middle Eastern countries and countries influenced by Islam, including Moslem Mindanao, in English or Filipino translation. 3 units. Prerequisite: Lit 3.

150 **Introduction to Philippine Literature.** A survey of Philippine literature in the vernacular and in Spanish (in English or Filipino translation) from the oral traditions to the end of the World War II. 3 units. Prerequisites: Lit 3 and Fil 12.

151 **Philippine Literature in English I.** The study of Philippine poetry, drama and essay written in English by Filipinos from the beginning of the American occupation down to the present. 3 units. Prerequisite: Lit 3.

153 **Philippine Literature in the Regional Languages.** The study of selected oral and written literature in the various regional languages, in the original or in English or Filipino translation. 3 units. Prerequisite: Lit 3.

160 **Ethnicity and Post-colonial Trends in Literature.** The study of the literatures of decolonizing countries. 3 units. Prerequisite: Lit 3.

161 **Literature, Gender and the Environment.** The study of the images and interrelations of gender and the environment as projected in the literary works of men and women writers of various literatures. 3 units. Prerequisite: Lit 3.

170 **Folklore and Popular Literature.** The study of folklore and popular literature around the world, including comics, pop songs and soap opera. 3 units. Prerequisite: Lit 3.

181 **The Novel.** The study of the novel as it develops in different cultures across cultures and milieux. 3 units. Prerequisite: Lit 3.

182 **The Short Story.** The study of the short story as it develops across cultures from its early beginnings to the contemporary times. 3 units. Prerequisite: Lit 3.

183 **Drama.** The study of drama as it develops across cultures. 3 units. Prerequisite: Lit 3.

184 **Poetry.** The study of poetry as it develops across cultures from its early beginnings to contemporary times. 3 units . Prerequisite: Lit 3.

185 **Biography and Essay.** The study of biography and essay as literary forms of prose expression across cultures. 3 units. Prerequisite: Lit 3.

199 **Research Methods.** Methods and problems of research in literature and cultural studies. 3 units. Prerequisite: Junior standing.

200 **Thesis Writing.** The writing of an undergraduate thesis. 3 units. Prerequisite: Lit 199

Pilipino (Pil)

101 **Gramatika.** 3 units. Prerequisite: Fil 12 or consent

Spanish (Span)

I **Elementary Course.** This provides intensive practice in conversational Spanish on an elementary level. The work consists entirely of the oral aspects of language study; of the spoken language, and conversations. Functional grammar is given to the students to serve as guide in the formation of correct speech habits. 3 units.

II **Elementary Course.** A continuation of Spanish I. The essentials of grammar, with special emphasis on idioms, are treated in this course. Emphasis is placed on intonation, pronunciation, vocabulary building and conversation. 3 units.

3 **Intermediate Course.** Emphasis on the subjunctive: reading, dictation, translation, conversation, composition and letter writing. 3 units. Prerequisite: Span I and II.

20 **Readings in Spanish.** Selected writings by Filipinos in the original Spanish versions. 3 units. Prerequisite: Span 3.

Speech

111 **Elements of Voice and Diction.** Development of good habits of speech through group and individual guidance, criticism and practice on voice, articulation and pronunciation. A preparation of effective social and professional use of the voice, as in teaching, public speaking, theater, radio, television and interpretation. A continued attention to students' speech problems arising from their various Philippine linguistic backgrounds. 3 units. Prerequisite: Comm 3.

123 **Interpretation of Drama.** The theory, principles and techniques of the interpretation of drama from the point of view of the oral interpreter and the actor. 3 units. Prerequisite: Comm 3 and Eng III.

136 **Forms of Public Address.** The more important forms of public address and the occasions which give rise to them; study of special methods by which speech is made clear, interesting and forceful. Readings and reports on Philippine public address. 3 units. Prerequisites: Comm 3 and Eng III.

Theater

120 **Elements of Theater.** Introduction to and participation in various theater forms, with emphasis in community theater as cultural expression and change agent. 3 units. Prerequisite: Drama Course.

127 **Acting.** Elementary principles and techniques of acting. 3 units. Prerequisite: BC 102 or consent of Div. Chair.

129 **Directing.** A lecture-laboratory course on directing: actual direction of dramatic presentations. 3 units. Prerequisite: Theater 120.

135 **Writing for Stage.** Course in playwriting, including analysis of various theater forms and student works. 3 units. Prerequisite: Theater 120.

198 **Theater Workshop.** An integrated laboratory course in theater production. Production of community plays. 3 units. Prerequisite: Theater 129.

Graduate Courses

Comparative Literature (CL)

201 **Areas and Methods of Comparative Literary Study.** 3 units.
202 **Aesthetics and Literary Theory.** 3 units.

Filipino (Fil)

217 **Ang Balarila ng Wikang Pambansa.** Ang mga pinagmulan o batayan at simulain ng pagsusuri, at mga nilalaman ng Balarila ng Wikang Pambansa ng Surian ng Wikang Pambansa, paghahambing nito sa makabagong gramatika ng Tagalog o Filipino. 3 yunit. Kailangan: Pahintulot.
220 **Seminar: Leksikograpiya ng Wikang Pambansa.** 3 yunit. Kailangan: Pahintulot
255 **Ang Maikling Kwentong Tagalog.** 3 yunit. Kailangan: Pahintulot.
295 **Mga Natatanging Suliranin sa Wikang Filipino.** 3 yunit. Kailangan: Pahintulot.

DIVISION OF PHYSICAL SCIENCES and MATHEMATICS

General Education Courses

Mathematics (Math) – MST

1 **Mathematics for General Education.** A survey of the essential concepts and applications of mathematics from a historical perspective. 3 units.

Natural Science (Nat Sci) – MST

1 **Foundations of Natural Science I.** Fundamental concepts, principles and theories of physics and chemistry. 3 units.

Undergraduate Courses

Computer Science (CMSC)

11 **Introduction to Computer Science.** Introduction to the major areas of computer science; software systems and methodology; computer theory; computer organization and architecture. Students learn to write programs using a high level block-structured programming language. 3 units (2 lec; 3 lab).
21 **Fundamentals of Programming.** Expansion and development of material introduced in CMSC 11. Processing of files and linked-lists; programming in the C-language; Recursion; Systematic program development; Top-down design and program verification. 3 units (2 lec, 3 lab). Prerequisite: CMSC 11.
22 **Fundamentals of Object-oriented Programming.** Introduction to object-oriented programming; classes; inheritance; polymorphism; exception handling; design and implementation of object-oriented programs; object-oriented Application Programming Interface (API) programming. 3 units (2 lec, 3 lab) Prerequisite: CMSC 21
55 **Discrete Mathematical Structures in Computer Science.** Principles of logic and set theory, combinatorics, discrete probability, recurrence relations, graph theory, algebraic systems and their application in computer science. 5 units. Prerequisite: Math 11and14 or Math 17.

56 **Discrete Mathematical Structures in Computer Science 1.** Principles of logic, set theory, relations and functions; Boolean algebra; matrices. 3 units. Prerequisite: CMSC 11 and Math 17

57 **Discrete Mathematical Structures in Computer Science 2.** Principles of combinatorics, probability, algebraic systems and graph theory. 3 units. Prerequisite: CMSC 56

123 **Data Structures.** Abstract data types and their implementations; lists, stacks, queue, trees, mappings, sets and graphs; searching and sorting techniques, dynamic storage management. 3 units. Prerequisite: CMCS 21 and 57.

124 **Design and Implementation of Programming Languages.** Study of the fundamental concepts in the design and implementation of the current high-level programming languages; syntax and translation; language definition structures, elementary and structured data types, abstraction mechanisms, sequence and data control, runtime considerations. 3 units (2 lec, 3 lab). Prerequisite: CMSC 123.

125 **Operating Systems.** Processor Management, memory management, file and disk management, resource management networks and distributed systems. 3 units (2 lec, 3 lab). Prerequisite: CMSC 123 and 131.

126 **Web Engineering.** Programmer-oriented introduction to current internet technologies, web authoring and Internet security; design and development of web applications using modern Internet tools. 3 units (2 lec, 3 lab). Prerequisite: CMSC 22 and 128

127 **File Processing and Data Base Systems.** Data models: relational, network, hierarchical models. Database management system, data definition and manipulation language. Data security, integrity, synchronization, protection and recovery. Principal database systems and query languages. 3 units (2 lec, 3 lab). Prerequisite: CMSC 123.

128 **Software Engineering 1.** Software life cycle from the requirement specification and design phases through the construction of actual software. Topics include planning a software project, cost estimation, software design, implementation, validation, and software maintenance. 3 units (2 lec, 3 lab). Prerequisite: CMSC 123.

129 **Software Engineering 2.** Practical software engineering; design and development of software systems using enterprise level applications; implementation, testing and deployment of software systems; software process improvement; software quality assurance; computer-aided software engineering (CASE) processes and tools; object-oriented analysis and design using the Unified Modeling Language (UML). 3 units (2 lec, 3 lab). Prerequisite: CMSC 128.

130 **Logic Design and Digital Computer Circuits.** Data representation and computer arithmetic; logic functions and equations; description, analysis and design combinatorial and sequential circuits; functional properties of digital integrated circuits. 3 units (2 lec, 3 lab). Prerequisite: CMSC 11.

131 **Introduction to Computer Organization and Machine Level Programming.** An Introduction to computer organization and interfaces between hardware and software. Microcomputer systems; basic computer organization; interfacing, interrupt mechanisms. Assembly language programming: machine vs. assembly vs. high level language, data structure representations, program control implementations, subroutines, parameter passing, recursion, direct video graphics, serial port communications. 3 units (2 lec, 3 lab).Prerequisite: CMSC 21 and 130.

132 **Computer Architecture.** Advanced topics in computer systems organization from a designer's point of view; multiprocessing, pipelining, array processors, associative processors; microprogramming, techniques for increasing primary memory bandwidths; modularization, interleaving, access path widening, cache and associative memories; virtual memory; bus structures; multiprogramming and time-sharing organizations; network principles and protocols, distributed resources. 3 units. Prerequisite: CSMC 131.

137 **Data Communications and Networking.** Network topology, OSI reference model, network applications, network management, and network security. 3 units (2 lec, 3 lab) Prerequisite: CMSC 132.

140 **Advanced Programming.** Intermediate programming PL/1 procedures; block structures; ON conditions; recursion; introduction to data structures and program analysis. 3 units (2 lec, 3 lab). Prerequisite: CMSC 21 and 57.

141 **Automata and Language Theory.** Finite automata and regular languages; push-down automata and context-free languages; Turing machine and recursively enumerable sets; linear-bounded automata and context-free languages; computability and halting problem;

undecidable problems; recursive functions; and computational complexity. 3 units. Prerequisite: CSMC 57.

142 **Design and Analysis of Algorithms.** Algorithm design techniques; use of data structures, divide and conquer, local and global search. Complexity analysis algorithms: asymptotic analysis, worst case analysis and averaged case analysis, recurrences, lower bounds, NP-completeness. 3 units. Prerequisite: CMSC 123

151 **Systems Analysis and Design.** Systems analysis and design: concepts, philosophies, trends, tools and techniques. Systems development life cycle; structured methodologies; data flow diagrams; entity-relationship diagrams; relational analysis; other design methodologies. 3 units. Prerequisite: CMSC 128.

152 **Management Information Systems. (MIS).** Fundamental principles of management; information management; general systems model and approach; data processing systems. The MIS approach: executive; marketing; manufacturing; financial and human resource information systems. 3 units. Prerequisite: CMSC 128.

153 **Accounting and Information Systems (AIS).** Fundamental principles of accounting; programming of accounting modules: general ledger, journal ledger, transaction ledger, accounts receivable, accounts payable, etc. 3 units (2 lec, 3 lab). Prerequisite: CMSC 21.

161 **Interactive Computer Graphics.** Graphic system software and hardware, 2D drawing algorithms, geometrical transformations, surface modeling, 3D viewing, visible surface determination algorithms, illumination and reflection models, shading models for polygons, color theory, ray tracing. Students write their 3D rendering engine. 3 units (2 lec, 3 lab). Prerequisites: CMSC 57 and 123

162 **3D Computer Graphics and Animation.** 3D graphics systems software and hardware; 3D modeling texturing, and lighting; animation basics; principles, armatures, constraints, IPO driver, rigging, effects and physical simulation; rendering; compositing, video sequence editing. 3 units (2 lec, 3 lab) Prerequisite: CMSC 123

170 **Introduction to Artificial Intelligence.** Introduction to the major fields of application of AI: natural language processing; image recognition; pattern recognition; learning. Introduction to AI programming languages: PROLOG, LISP. Search and control strategies; probabilistic reasoning; matching techniques; knowledge and state space representation. 3 units. Prerequisite: CMSC 123.

171 **Expert Systems and Knowledge Engineering.** Expert system shells and architectures; knowledge representation languages; uncertainty handling; techniques of knowledge elicitation and acquisition; rule-based expert systems; knowledge organization and management. 3 units (2 lec, 3 lab). Prerequisite: CMSC 123.

172 **Computing with Symbolic Expressions.** Basic discrete mathematics, sets, functions, and predicates. Functional programming in LISP or PROLOG: function and declarative programming; atoms and lists; list processing by recursive functions; mapping functions; local function binding; data abstraction and evaluation. 3 units. Prerequisite: CMSC 123.

180 **Computer Simulation and Modeling.** Algorithms and packages for standard graphics; advanced 2-D and 3-D rendering techniques; realism; visualization of scientific data. Use of statistical tools and techniques, knowledge in expert systems and artificial intelligence for data representation and analysis. Problems in other disciplines of science will be chosen as examples to be used for modeling and simulation. 3 units (2 lec, 3 lab). Prerequisite: CMSC 123.

181 **Introduction to Parallel Computing.** Parallel computer architectures; principles of parallel algorithm design, programming shared- and distributed- memory systems, understanding parallel performance; numerical and non-numerical parallel algorithms; programming models; shared memory, message passing, and global address space languages. 3 units (2 lec, 3 lab). Prerequisite: CMSC 123

190 **Special Problem.** Individual study of computer-related problem. It can be taken twice as long as the total number of units to be credited to the student's program will not exceed 4 units. 3 units. Prerequisite: COI.

192 **Ethical and Professional Issues in Computing.** Ethical and professional issues, licensing, intellectual property rights, privacy and security issues, cyber crime, business challenge of computer malware, and the impact of computing in business and society. 1 unit. Prerequisite: Senior standing

195 **Practicum.** 3 units. Prerequisite: Junior Standing.

197 **Special Topics.** Lecture course in topics of current interest, such as data communications, parallel computation, artificial intelligence, neutral networks. It can be taken twice provided

that the total number of units to be credited to the student's program will not exceed 4 units. 3 units. Prerequisite: COI.

198.1 **Special Problem.** Research project proposal; design and development of a system prototype. 2 units Prerequisite: Senior standing

198.2 **Special Problem.** Research project development; implementation, deployment and testing of a system. 2 units. Prerequisite: CMSC 198.1

Mathematics (Math)

11 **College Algebra.** Linear equations; algebraic and graphical solutions of the quadratic equations; exponents and radicals; complex numbers; binomial expansion; determinants; progressions; theory of equations. 3 units.

14 **Plane Trigonometry.** Logarithms; graphs of the trigonometric functions; the general triangle; solutions of the trigonometric, inverse trigonometric, exponential and logarithmic equations; complex numbers. 3 units.

17 **Algebra and Trigonometry.** Sets and numbers; the algebra of numbers as a logical system; inequalities; absolute values and coordinate systems, functions and graphs; circular, linear, quadratic and polynomial functions; exponential and logarithmic functions; applications of the circular functions to angles. 5 units

19 **Advanced Algebra.** Inequalities, complex numbers, theory of equations, matrices and determinants, sequences and series, mathematical induction, permutation, combination, binomial theorem, introductory number theory. 3 units. Prerequisite: Math 17 or equivalent

20 **Euclidean and Non-Euclidean Geometries.** Points, lines and planes; polyhedra; orthogonal projection; the pyramid, cylinder, cone and sphere; hyperbolic geometry, elliptic geometry and other non-Euclidean geometries. 3 units. Prerequisite: Math 17 or equivalent

21 **Plane and Solid Geometry.** Reasoning; points, lines and planes; angles and triangles; proof construction; congruences; geometric inequalities; perpendicularity and parallelism; area theory; similarity; circles and spheres; solids and their volumes. 3 units.

42 **Elementary Mathematical Methods I in Physics.** Applications of College Algebra and Trigonometry to Physics. 4 units.

43 **Elementary Mathematical Methods II in Physics.** Differential and integral calculus as applied to Physics. 3 units. Prerequisite: Math 42.

52 **Analytical Geometry and Calculus I.** Straight lines. Functions and graphs; limits and continuity, concept of derivative. Derivatives of algebraic functions; applications to curve sketching, rate, maximum and minimum problems. Second degree curves; polar coordinates. 3 units. Prerequisite: Math 11 and 14 or equivalent

53 **Elementary Analysis I.** Functions and their graphs; concept of limit and continuity; theory of differentiation; derivatives of algebraic and trigonometric functions; theory of integrals; applications of the definite integral. 5 units. Prerequisite: Math 17 or equivalent

54 **Elementary Analysis II.** Integration methods; determinants; plane and solid analytics; hyperbolic functions; polar coordinates; vectors; parametric equations. 5 units. Prerequisite: Math 53.

55 **Elementary Analysis III.** Partial differentiation; multiple integrals; finite series; differential equations. 3 units. Prerequisite: Math 54.

100 **Introduction to Calculus.** Limits, derivatives; integrals; applications. 4 units. Prerequisite: Math 17 or consent.

101 **Elementary Statistics.** Presentation of data; frequency distribution; central tendencies; index numbers, dispersion; normal curve; Poisson curve; correlation; sampling distribution; elements of statistical inference. 3 units. Prerequisite: Math 11 or 17

102 **Analytical Geometry and Calculus II.** Indefinite and definite integrals; applications to plane area, volume, arc length, and area of a surface of revolution. Transcendental functions. Methods of integration. 3 units. Prerequisite: Math 52

103 **Analytical Geometry and Calculus III.** Parametric equations, vectors, and solid analytical geometry. Partial differentiation; multiples of integrals. Infinite series. 3 units. Prerequisite: Math 102

106 **Mathematics for Science Teachers.** Selected topics on basic concepts, and methods of Mathematics. 3 units. Prerequisite: Senior standing.

108 **Abstract Algebra.** Binary operations; groups; rings; fields; integral domain. 3 units. Prerequisite: Math 131

114 **Linear Algebra.** Vector spaces; linear transformation and matrices; eigenvalues; canonical forms; applications. 3 units Prerequisite: Math 131 or consent.

116 **Number Theory.** Divisibility, unique factorization theorem, congruences, primitive roots and indices, quadratic reciptocity, functions of number theory, solutions of Diophantine equations. 3 units. Prerequisite: Math 19.

121 **Elementary Differential Equations.** Ordinary differential equations. Total differential equations. Partial differential equations of the first and second orders. 3 units. Prerequisite: Math 55 or may be taken simultaneously with Math 55

122 **Dynamical Systems.** Existence and uniqueness theory of ordinary differential equation, equilibrium points and their stability, periodic solutions, Poincare maps, local bifurcations of equilibria, perturbation methods. 3 units. Prerequisite: Math 121

123 **Advanced Calculus I.** Topology of the real line; limits; continuity; derivatives; Reimann integral; improper integrals. 3 units. Math 55 or equivalent

127 **Vector Analysis.** Vector algebra and calculus. Invariants. Green's theorem. Stoke's theorem. Gauss's theorem. Applications to geometry and physics. 3 units. Prerequisite: Math 121.

128 **Complex Analysis I.** Functions of a complex variable. Holomorphic functions. Taylor and Laurant's expansions. Residue theory, complex integration. 3 units. Prerequisite: Math 55 or equivalent

131 **Logic and Set Theory.** Sets and operations on sets, relations, functions, cardinal and ordinal numbers, the axiom of choice and its equivalents. 3 units. Prerequisite: Math 19

140 **Graph Theory and Combinatorics.** Graph characterization and operations; graphs and algorithms; trees, connectivity, traversability, matching and factorization, planarity, colorability, digraphs and tournaments, binomial and multinomial coefficients, pigeonhole principle and Ramsey numbers, the principle of inclusion and exclusion, generating functions, recurrence relations. 3 units. Prerequisite: Junior standing.

144 **Advanced Plane Geometry.** Critical review of plane geometry; metric and projective properties of plane figures. 3 units. Prerequisite: Math 103.

146 **Introduction to Topology.** Topological spaces, convergence, product and quotient spaces, connectedness and compactness, countability and separation axiom, applications. 3 units. Prerequisite: Math 55 and 131.

150.1 **Theory of Probability I.** The sample space. Probability as a set function. Elements of combinatorial analysis. Combination of events. Conditional probability and stochastic independence. Random variables. Distribution functions of random variables. Applications. Special discrete and continuous distributions. 3 units. Prerequisite: Math 101 and 55 or their equivalents.

152 **Introduction to Computer Software Application.** Hands-on experience on the use of different application softwares. 3 units (2 lec, 3 lab). Prerequisite: COI.

153 **Computer Programming I.** Fundamental concepts and methods of computer programming. 3 units (2 lec, 3 lab). Prerequisite: COI.

154 **Computer Programming II.** Statistical and other scientific applications of computer programming. 3 units (2 lec, 3 lab). Prerequisite: Math 153.

171 **Elementary Numerical Analysis I.** Error analysis; numerical methods for the solutions of equations, simultaneous linear equations, eigenvalues and eigenfunctions; orthogonalization and polynomial approximation. 3 units. Prerequisite: Math 121 or COI.

173 **Numerical Methods I.** Numerical methods for solving roots of single nonlinear equations and systems of linear equations, polynomial interpolation, numerical differentiation and integration. 3 units (2 lec, 3 lab). Prerequisite: Math 55 and 114.

174 **Numerical Methods II.** Numerical methods for solving ordinary and partial differential equations, spline and least-square approximation, optimization, and selected advanced topics in numerical methods. 3 units (2 lec, 3 lab). Prerequisites : Math 153 and 173.

175 **Mathematical Modeling.** Application of mathematical tools and techniques in the construction of suitable mathematical models for real-world problems arising in the fields of physical and natural sciences, engineering, and other disciplines outside of mathematics. Discussion of problem formulation, analysis and interpretation of solution as well as the major issues pertaining to the implementation phase of the modeling process. 3 units. Prerequisite: Math 173

178 **Mathematical Economics.** Mathematical methods applied to elementary economic theory. 3 units. Prerequisite: Math 17 and Econ 11.

183 **Linear and Integer Programming.** Origin and nature of operations research; linear programming models and formulation, graphical method, simplex method, duality theory,

sensitivity analysis; transportation problem, transshipment problem, assignment problem; integer-linear programming model and formulation, branch and bound method, cutting-plane algorithm, implicit enumeration. 3 units. Prerequisite: Math 114.

184 **Network Analysis and Dynamic Programming.** Shortest-route problem, minimal spanning tree problem, maximal-flow problem, network simplex method, project scheduling with PERT-CPM; deterministic and probabilistic dynamic programming applied to resource allocation, equipment replacement, and other related problems; inventory models; Markovian decision processes. 3 units. Prerequisite: Math 183.

185 **Planar Location and Facility Theory.** Median-and-center problems in a plane, one and multi-facility problems, relation of location problems, linear and network optimization. 3 units. Prerequisite: Math 183

186 **Nonlinear Optimization.** Nonlinear programming models and formulation, graphical approach; classical unconstrained and constrained optimization, nonlinear programming algorithms; analysis of selected nonlinear programming problems such as quadratic programming, stochastic programming, convex programming, geometric programming, and fractional programming. 3 units. Prerequisite: Math 183

190 **Special Topics in Mathematics.** 3 units. Prerequisite: COI.

191 **Practicum.** Supervised practical experience in some areas of applied mathematics in an industrial, business, or governmental setting. Students are required to document their work experience and write a report which will be evaluated by their faculty supervisor in consultation with the employers. 3 units (150 hours). Prerequisite: Must have taken at least 30 units of upper division courses.

196 **Mathematics Seminar.** 1 unit. Prerequisite: Senior standing

Physics

21 **Introductory Physics.** An introduction to the basic principles of physics (primarily for students who are not in the natural and engineering sciences). 4 units. Prerequisite: Math 11 or equivalent

21.1 **Introductory Physics Laboratory.** 1 unit. Corequisite: Physics 21.

51 **General Physics I.** Introduction to mechanics, waves, sound and thermodynamics. 3 units. Prerequisite: Math 17 or equivalent.

51.1 **General Physics I Laboratory.** 1 unit (2 lab). Corequisite: Physics 51.

52 **General Physics II.** Introduction to electromagnetism, optics and modern physics. 3 units. Prerequisite: Physics 51.

52.1 **General Physics II Laboratory.** 1 unit (2 lab). Corequisite: Physics 52.

71 **Elementary Physics I.** Mechanics of particles, rigid bodies and fluids. 4 units. Prerequisite: Math 53 or 52.

71.1 **Elementary Physics I Laboratory.** 1 unit (2 lab). Corequisite: Physics 71.

72 **Elementary Physics II.** Electricity and magnetism, wave phenomena, and optics. 4 units. Prerequisite: Physics 71.

72.1 **Elementary Physics II Laboratory.** 1 unit (2 lab). Prerequisite: Physics 71.1; Corequisite: Physics 72.

73 **Elementary Physics III.** Thermal physics, relativity, and quantum physics. 4 units. Prerequisite: Physics 72.

73.1 **Elementary Physics III Laboratory.** 1 unit (2 lab). Prerequisite: Physics 72.1; Corequisite: Physics 73.

74 **Foundations of Physics I.** Vectors, Particle Kinematics and Dynamics, Rotational Motion, Fluids, Temperature and Heat. 4 units (3 lec, 2 lab). Corequisite: Math 42.

75 **Foundations of Physics II.** Wave, Motion and Sound, Laws of Electricity and Magnetism, Electric and magnetic Fields, Electric Circuits, Electromagnetic Oscillations, Electromagnetic Fields and Waves. 4 units (3 lec, 2 lab). Prerequisite: Physics 74; Corequisite: Math 43.

76 **Foundations of Physics III.** Geometrical and Physical Optics, Special Relativity, Blackbody Radiation, Particle Aspect of Waves, Wave Aspect of Particles, Introduction to Atomic Physics. 4 units (3 lec, 2 lab). Prerequisite: Physics 75.

85 **Basic Electronics.** Semi-conductors; solid state devices; diodes; transistors; amplifiers, oscillators; logic gotes; analog circuits, digital circuits. 3 units (1 lec, 4 lab). Prerequisite: Physics 75.

115 **Mathematical Physics.** Transcendental functions; coordinate systems; vector analysis; analytic geometry; Taylor series; matrices and determinants; applications to physics. 3 units. Prerequisite: Math 43.

123 **Theoretical Mechanics.** One- and three-dimensional motion of a particle; Motion of a system of particles; rigid bodies; rotation; statics; gravitation. 3 units. Prerequisite: Physics 76 Corequisite: Physics 115.

133 **Electromagnetic Theory.** Electrostatic fields in vacuo and in di-electric media; magnetostatics; electromagnetic fields of constant and variable currents; Maxwell's equations; Magnetic materials. 3 units. Prerequisite: Physics 76 and 115.

141 **Intermediate Physics I.** Mechanics, heat, sound and the general properties of matter. (Primarily for education students). 3 units . Prerequisite: Physics 43 and Math 55 or consent.

142 **Intermediate Physics II.** Electricity and magnetism; geometrical and physical optics. (Primarily for education students). 3 units. Prerequisite: Physics 141 or consent.

143 **Introductory Quantum mechanics.** Quantum theory; Schrodinger's Equation and elementary wave mechanics; Hydrogen Atom; Angular Momentum; Pauli's Principle. 3 units. Prerequisite: Physics 76 and 115.

189 **Advanced Physics Laboratory.** Selected experiments in mechanics, electricity, magnetism and modern physics. 2 units (6 lab). Prerequisite: Senior standing.

196 **Physics and Society.** The interrelationship between physics, society, civilization, and culture; physics and social change; social functions of physics; physics and national development. 3 units. Prerequisite: COI.

198.1 **Physics Seminar I.** Seminar course in Physics covering the areas of mechanics, electricity, magnetism and modern physics. 2 units. Prerequisite: Senior standing.

198.2 **Physics Seminar II.** Seminar course in Physics covering the areas of electromagnetic theory, quantum mechanics, and advanced physics. 2 units Prerequisite: Senior standing.

Statistics (Stat)

104 **Descriptive Statistics.** Statistics; statistical measurement; statistical notations; collection, organization, and presentation of data; measures of central tendency, location, dispersion, skewness, kurtosis; letter values, boxplots and stem and leaf display; measure of association and relationship; rates, ratios, and proportions; construction of index numbers and indicators. 3 units (2 lec, 3 lab). Corequisite: Math 17.

105 **Introduction To Statistical Analysis.** Organization and presentation of data; probability functions; random variables; elements of statistical inference; analysis of variance. 3 units (2 lec, 3 lab). Prerequisite: Math 17.

106 **Advanced Statistical Analysis.** Regression and correlation analysis; non-parametric methods; experimental design; time series analysis. 3 units (2 lec, 3 lab). Prerequisite: Stat 105.

110 **Non-Bayesian Probability.** Definitions and properties of events, probability and random variables; joints, conditional and marginal distributions; some important probability distributions. 4 units. Prerequisite: Math 154 or equivalent

111 **Statistical Methods and Inference.** Population and sample; data collection and presentation methods; measures of location and dispersion; sampling estimators and estimation techniques; test of hypothesis. 4 units. Prerequisite: Stat 110.

117 **Mathematics for Statistics.** Principle of logic; methods of proof; fields, sigma field and sequences of sets; the real number system; summation of series; combinatorial analysis. 3 units. Prerequisite: Math 17.

121 **Probability Theory I.** Elements of probability; random variables; discrete and continuous random variables; probability distributions; special distributions; mathematical expectations. 3 units. Prerequisite: Math 53, Stat 117. Corequisite: Math 54.

122 **Probability Theory II.** Joint, marginal, and conditional distributions; independence of several random variables; distributions and expectations of functions of random variables; characterization of F, t, $\chi 2$ distributions; limit theorems. 3 units. Prerequisite: Stat 121.

129 **Regression and Correlation Analysis.** Linear regression model; model selection; regression diagnostics; use of dummy variables; remedial measures. 3 units. Prerequisites: Math 114 and Stat 131.

130 **Introduction to Experimental Design.** Principles of experimental design; completely randomized design; randomized complete block design; latin-square design; factorial experiments; analysis of variance; transformations. 3 units. Prerequisite: Stat 129.

131 **Parametric Statistical Inference.** Population and sample; statistics and sampling distributions; point and interval estimation; statistical hypothesis testing; application of z, t, $\chi 2$ and F tests. 4 units (3 lec, 3 lab). Prerequisite: Stat 122.

132 **Nonparametric Statistical Inference.** Levels of measurement; goodness-of-fit tests; sign and signed ranks tests; distribution tests; association tests; tests for independence. 3 units. Prerequisite: Stat 131.

138 **Use of Statistical Software Packages.** Use of database software. spreadsheet and statistical software packages for data management. 3 units (2 lec, 3 lab). Prerequisite: Stat 104, Math 153.

140 **Introduction to Sample Surveys.** Designs of surveys; sample designs; estimation of population characteristics; biases and non-sampling errors. 3 units. Prerequisite: Stat 131

141 **Multivariate Theory.** Multivariate normal distribution; other multivariate distributions; inference on the mean vector; interference on dispersion matrix; comparing two normal populations; multivariate analysis of variance and covariance. 3 units. Prerequisite: Stat 129. Corequisite: Stat 130.

142 **Applied Multivariate Analysis.** Principal component analysis; factor analysis; discriminant analysis; cluster analysis; other multivariate techniques. 3 units. Stat 141.

145 **Introduction to Time Series Analysis and Forecasting.** Classical methods; ARIMA models; Box-Jenkins methods; intervention analysis. 3 units. Stat 129.

149 **Introduction to Categorical Data Analysis.** Categorical data; cross-classification tables; analysis using loglinear, logistic and logit models. 3 units. Prerequisite: Stat 129.

150 **Statistical Operations.** Research process; techniques of data measurement; issues of reliability and validity; scale construction; principles of questionnaire design; preparation of questionnaires and interview schedules; data collection; data coding and encoding; data quality control; presentation of research findings. 3 units. Prerequisite: Stat 140, Stat 138.

170 **Introduction to Industrial Labor Statistics.** Levels of supply and demand of labor force; industrial and occupational classifications; work stoppages; indices of labor-management friction. 3 units. Prerequisite: Stat 122.

171 **Elementary Economic Statistics.** The system of national accounts; input-output analysis. 3 units. Prerequisite: Stat 129.

172 **Elements of Agricultural Statistics.** Agricultural censuses; sources of and methodology for current agricultural statistics. 3 units. Prerequisite: Stat 131.

173 **Elementary Actuarial Statistics.** Annuities, certain sources and characteristics of mortality tables; life annuities; life insurance; net level reserves. 3 units. Prerequisite: COI.

174 **Elementary Statistical Quality Control.** Construction and analysis of control charts for variables and attributes; practical applications of acceptance sampling plans. 3 units. Prerequisite: Stat 131.

178 **Introduction to Operations Research.** Nature of operations research; formulation of problems and construction of models. Linear programming. Network models. Inventory control. Queuing models. Replacement models. Simulation. 3 units. Prerequisite: COI

180 **Introduction to Stochastic Processes.** Probability spaces; random variables; definition of stochastic processes; classification of stochastic processes; Markov chains; continuous time Markov chains; renewal processes. 3 units. Prerequisites: Math 121.1 and Stat 122.

197 **Special Topics in Statistics.** 3 units Prerequisite: COI.

DIVISION OF SOCIAL SCIENCES

General Education Courses

History (Hist) – SSP

1 **Philippine History.** The political, economic, social and cultural development of the Philippines. 3 units.

2 **Asia and the World.** A study of Asian cultural heritage in relation to world civilization. 3 units.

Philosophy (Philo) – SSP

1 **Philosophical Analysis.** Application of basic concepts, skills, principles and knowledge drawn from Philosophy of Language, Symbolic Logic, Epistemology, Philosophy of Science and Ethics. 3 units.

Psychology (Psych) – SSP

10 **Looking at the Self Through Different Psychological Perspectives.** The functioning of the individual – his mind, feelings, capabilities, behavior and growth; the role of the environment and culture in shaping the individual. 3 units

Social Science (Soc Sci) - SSP

1 **Foundations of Behavioral Sciences.** A survey of basic concepts, principles, theories and methods of the behavioral sciences: (Sociology, Psychology, Anthropology, including the behavioral components of Linguistics, Demography and Geography) and the dynamics of social change. 3 units.
2 **Social, Economic and Political Thought.** A survey of social, economic, and political thinkers from the classical to contemporary times. 3 units.
5 **Understanding Gender.** Critical analysis of key concepts, root causes, forms and dimensions of gender relations and their varied manifestations in selected societies. 3 units.
10 **Changing Asia.** A study of change within Asian societies and cultures: characteristics, sources and manifestations . 3 units.
26 **People, Places, and Spaces in a Changing World.** Geographical and interdisciplinary perspective on economic, political, social, cultural and environmental change in local, national and global contexts. 3 units.

Undergraduate Courses

Anthropology (Anthro)

1 **General Anthropology.** An introduction to anthropological knowledge with respect to the physical origin of man, his evolution, differentiation and classification into races and subraces, the nature and structure of culture, the forces and processes involved in cultural change. 3 units.
118 **Prehistory of the Philippines.** Theories and problems of the peopling of the Philippines. 3 units. Prerequisite: Anthro 1.
129 **Philippine Ethnic Communities.** Ethnography and cultural ecology of indigenous and non-indigenous ethnic groups in contemporary Philippines. 3 units. Prerequisite: Anthro 1.
165 **Philippine Folklore.** Oral and traditional literature of the Filipino people and its significance. 3 units.
181 **Social Anthropology.** Concepts, theories, and present-day implications. 3 units.
188 **Culture Change.** Theories, methods and problems involved in culture change, factors relating to the stability, growth and change in non-western areas of the contemporary world. 3 units. Prerequisite: Anthro 1 or consent.

Community Development (CD)

11 **Introduction to Community and Community Development.** Community and community development concepts, principles, approaches, trends and problems in developing countries. 3 units.
101 **Philippine Society and Community Development.** Philippine economic, socio-cultural and political structures and processes and their impact on community development. 3 units. Prerequisite: CD 11.

110 **Theories and Indicators of Development.** The history, theories and evolving indicators of development and their relevance to developing countries. 3 units.

122 **Community Organization, Mobilization and Advocacy.** Theories, principles and approaches of community organizing, mobilization, and advocacy as strategies in harnessing people's participation for social change. 3 units.

127 **Development Administration and Ethical Considerations in Development Work.** Participatory program and project development and management and ethical guidelines for community initiatives. 3 units. Prerequisite: CD 122.

129 **Resource Generation for Development.** Policies, approaches, strategies and issues in resource generation for community development. 3 units.

135 **Intergenerational Approaches to Community Education.** Theories, principles, methods of and preparation of learning materials and modules for intergenerational and adult education. 3 units. Prerequisite: At least 12 units of CD core courses.

141 **Rural and Urban Development Programs and Strategies.** Perspectives, programs and strategies in rural and urban development. 3 units. Prerequisite: CD 101.

147 **Community Involvement in Environment Resource Management.** Policies, approaches, strategies and issues in upland, lowland, and coastal community environment resource management. 3 units. Prerequisite: CD 122.

151 **Community Governance and Global Change.** Forms of community governance in the context of global change and challenges. 3 units. Prerequisite: Pol Sci 14.

166 **Seminar in Gender and Development.** Gender issues, perspectives, and approaches to development. 3 units.

168 **Special Topics in Community Development.** 3 units. Prerequisite: Senior Standing.

180 **Introductory Supervised Fieldwork.** Preliminary immersion, social investigation and linkaging as preparatory activities before the students go on a fieldwork. 3 units. Prerequisite: 21 units of CD core courses including CD 135.

181 **Integrated Field Instruction Program.** Field placement in either urban or rural community. 6 units.. Prerequisite: CD 180.

199.1 **Research Methods.** Theory and methods in community and participatory research. 3 units. Prerequisite: Soc Sci 101 and Senior Standing.

199.2 **Research Project in Community Development.** Conduct of community and participatory research about issues on community development leading to empirical verification or analytical findings. 3 units. Prerequisite: CD 199.1.

Economics (Econ)

11 **Introductory Economics.** Basic principles, economic institutions; the national economy in a development setting. 3 units. Prerequisite: Math 11 or 17

101 **Macroeconomic Theory and Policy.** National income, employment, savings and investment; simple dynamic models. 3 units. Prerequisite: Econ 11.

102 **Microeconomics.** Behavior of the consumer, the firm, the industry; allocation of resources. 3 units. Prerequisite: Econ 11.

106 **Elements of Mathematical Economics.** Mathematical approaches to elementary economic theory. 3 units. Prerequisites: Econ 101, Econ 102, Math 100.

109 **History of Economic Doctrines.** Survey of the development of economic analysis and doctrines. 3 units. Prerequisite: Econ 101.

111 **Introductory Economic History.** Economic change in Europe and selected countries. 3 units. Prerequisite: Econ 101.

115 **Philippine Economic History.** Economic change in the Philippines, with emphasis on conditions since 1900. 3 units.

121 **Money and Banking.** Theory and policy problems concerning money credit and financial institutions. 3 units. Prerequisite: Econ 101 or consent

131 **Quantitative Economics.** Representation of economic phenomenon in terms of elementary mathematical and statistical models. 4 units (3 lec, 3 lab). Prerequisite: Econ 101, Econ 102, Math 101, Math 100.

141 **International Economics.** International trade and capital movements; survey of international economic institutions. 3 units. Prerequisite: Econ 101 or consent

142 **International Trade Policies.** Problems and policies in international commerce; tariffs and controls; international agreements and organizations. 3 units. Prerequisite: Econ 141.

151 **Public Economics.** Market failure; collective choice; theory of government expenditures and taxation. 3 units. Prerequisite: Econ 101 and 102

153 **Project Evaluation.** Discounted cash flow analysis; social opportunity cost pricing; applications to public sector projects with case studies; post-evaluation techniques. 3 units. Prerequisite: Econ 101 and 102.

161 **Industrial Organization.** Firm and industry behavior under different market conditions; public policies toward business. 3 units. Prerequisite: Econ 102 or consent

171 **Economics of Agriculture.** Problems and policies in the agricultural sector. 3 units. Prerequisite: Econ 102.

172 **Resource and Environmental Economics.** Introduction to the analysis of problems and management of natural resources; environmental problems and policies. 3 units. Prerequisite: Econ 101 and 102.

173 **Aquaculture Economics.** Economic analysis of the aquaculture sector, utilization of aquaculture resources; production, consumption, and distribution of aquaculture products; problems, policies, and programs for the aquaculture sector. 3 units. Prerequisite: Econ 102 or Consent

174 **Fisheries Economics.** Micro and macroeconomic analysis of the fisheries sector; utilization of fisheries resources; production, consumption and distribution of fish and fisheries production: problems; policies, and programs for the fisheries industry. 3 units. Prerequisite: Econ 101 and 102 or Consent.

175 **Economics of Fisheries Management, Regulation and Policy.** Economic aspects and analysis of alternative fisheries management arrangements; fisheries regulation and management; fisheries policy. 3 units. Prerequisite: Econ 101, 102, and 174.

176 **Marketing of Agricultural and Fisheries Products.** Marketing systems for agricultural and fisheries products; market structure and channels; market demand and supply; market conduct and performance. 3 units. Prerequisite: Econ 101 and 102.

177 **Economic Valuation of Natural Resources and Environment.** Concepts and elementary theories in economic valuation of natural resources and the environment; total economic value; valuation approaches and methods. 3 units. Prerequisite: Econ 101, 102, and 172

181 **Labor Economics.** Determinants of wage levels and wage structure; employment; non-wage aspects of employment; aspects of human capital theory. 3 units. Prerequisite: Econ 101 and 102

191 **Development Economics.** Theories and problems of growth and development; survey of the experience in low-income and high-income countries. 3 units. Prerequisite: Econ 101.

193 **The Economics of Rural and Urban Poverty.** Economic principles as applied to poverty measurement and issues on rural and urban poverty. 3 units Prerequisite: Econ 101 and 102

195 **Economic Geography.** Economic principles as applied to the dynamics of disparate regional development. 3 units. Prerequisite: Econ 101 and 102

196 **Urban and Regional Economics.** Introduction to location theory; the urban economy; regional income theory; regional interdependence. 3 units. Prerequisite: Econ 101 and 102.

198 **Special Topics in Economics.** 3 units. (This may be taken two or more times provided the topics are different; the specific topic (s) taken by the student will be indicated in her/his transcript of records.) Prerequisite: Econ 101 and 102.

199.1 **Economic Research I.** Methods and approaches in economics research; preparation of a research proposal. 3 units. Prerequisite: Senior Standing, Math 101, Econ 131, Econ 106, and English 10.

199.2 **Economics Research II.** Conduct of economics research project; data collection and analysis; research results presentation; writing of economics research. 3 units. Prerequisites: Senior Standing, Math 101, Econ 131, Econ 106, English 10 and Econ 199.1.

Geography (Geog)

171 **Political Geography.** The relation between people's political activities and their natural environment. 3 units. Prerequisite: Geog 10, 11 or COI

History (Hist)

100 **Introduction to World Civilization.** The historical development of world civilizations from ancient times to the present with emphasis on the growth and influence of basic ideals and institutions which have shaped mankind and the chief political, economic, social, and cultural movements. 3 units.

101 **Ancient and Medieval History.** Greece, Rome and Medieval Europe. 3 units.

102 **Modern Europe.** From the 16th century to the post-World War II period. 3 units.

105 **History of England.** English history from earliest to the close of the reign of Queen Victoria. 3 units.

107 **History of Modern Russia.** A study of the political and socio-economic development in Russia from the middle part of the 19th century to the present. 3 units.

110 **Colonial Philippines I.** The Philippines under Spain. 3 units.

112 **Colonial Philippines II.** The Philippines under United States and Japan. 3 units.

114 **Cultural History of the Philippines.** The literary, artistic and intellectual history of the Philippines, from the Spanish period to the present. 3 units.

115 **Philippine Revolution.** The Philippine Revolution and the Philippine-American War. 3 units.

116 **Philippine Nationalism.** The growth and development of nationalism in the Philippines. 3 units.

151 **Modern East Asia.** The history of China, Korea and Japan since 1800. 3 units.

152 **Modern South Asia.** The history of the Indian subcontinent from the break-up to the Mogul Empire through the establishment of the British raj to the Union of India and the establishment of the Republic of Pakistan. 3 units.

153 **Modern West Asia.** Tradition, change and modernization in West Asia from the decline of the Ottoman Empire and the rise of successor states to the present. 3 units.

154 **History of Southeast Asia.** The history of Burma, Thailand, Vietnam, Laos, Cambodia, Malaya, Indonesia, Singapore and the Philippines, with emphasis on the post-colonial period. 3 units.

156 **Political and Diplomatic History of East Asia.** The early foreign intercourse of China, Japan and Korea with the West; the treaty settlements with China and Japan, the Korean Question, the Sino-Japanese war, the partition of China and the international aspect of the Boxer Uprising, the Russo-Japanese Conflict, the Manchurian Question, East Asia up to the present. 3 units.

166 **History of the United States I.** The colonial and revolutionary periods and the political, social, economic, and cultural developments of the United States through the Civil War. 3 units.

167 **History of the United States II.** The political, social, economic, and cultural developments from the Reconstruction period to the present. 3 units.

168 **History of the Latin Americas.** The history of the Central and South Americas with emphasis on post-colonial period. 3 units.

171 **African History.** The history of African States with emphasis on the struggles of the African peoples to become independent from colonial rule. 3 units.

199 **Historical Methodology.** Principles, methods and problems of historical research and writing. 3 units.

Philosophy (Philo)

11 **Logic.** Techniques and formal deduction within the scope of sentential and predicate logic. 3 units

160.1 **Philosophy of Natural Science.** An introduction to the Philosophy of science with emphasis on the nature of explanation/prediction, laws and theory in the natural sciences. Prerequisites: Senior standing and consent. 3 units.

160.2 **Philosophy of Social Sciences**. An introduction to the Philosophy of Science with emphasis on the nature of explanation/prediction, laws and theory in the social sciences. Prerequisites: Senior standing. 3 units.

171 **Ethics.** Problems and theories of moral values. 3 units

Philippine Institutions (PI)

100 **The Life and Works of Jose Rizal.** The significance of the life and writings of Rizal in the life of the Filipino people. 3 units. Prerequisite: Senior Standing.

Political Science (Pol Sci)

11 **Introduction to Political Science.** Concepts, theories, and principles of political science; types of political systems; development of political institutions and processes. 3 units

14 **Philippine Government and Politics.** Development, organization and operation of the Philippine political system, with emphasis on the present. 3 units

111 **Quantitative Methods in Political Science.** Introduction to the different statistical methods used in political science research. 3 units. Prerequisite: Pol Sci 11 and Math 11

150 **Philippine National and Local Administration.** Principles, practices and problems of public administration; historical, behavioral and institutional analysis and evaluation of the national and local bureaucracy and administration in the Philippines. 3 units. Prerequisite: Pol Sci 11 and 14

151 **Health and Public Policy.** Government policy responses to public health issues and their impact on people's health situation. 3 units

160 **Society, Politics, and Government.** Society as the matrix of politics; political power and leadership; patterns of decision-making; political modernization and development. Prerequisite: Pol Sci 11 or consent

161 **Political Parties and Interest Groups.** The types and structures of political parties and interest groups; their function in the political system; their strategy and tactics, particularly in aggregating and articulating interests and controlling governmental power and public policy. 3 units. Prerequisite: Pol Sci 11 and 14

162 **Politics of Development.** The political implications of development; the process of political growth in developing countries; the relationship between the nature, organization, dynamics of government and development. 3 units. Prerequisite: Pol Sci 10 or COI

163 **Political Behavior: Processes and Movements.** Belief systems; nature and development of political processes and movements. 3 units. Prerequisite: Pol Sci 160 or consent

164 **Identity Politics.** Nationalism and other processes in constructing identity; dynamics, consequences and strategies in resolving identity conflicts. 3 units. Prerequisite: Pol Sci 160

170 **Comparative Western Politics.** Comparative study of political systems of UK, France, USSR, US and Switzerland. 3 units. Prerequisite: Pol Sci 11 and 14

171 **Comparative Politics of Capitalist Systems.** Comparative politics focusing attention on the political culture, processes, and institutions of states, which adhere to the capitalist system. 3 units. Prerequisite: Pol Sci 11 and 14

172 **Government and Politics of Selected European States.** Political systems of the United Kingdom, France, Italy, East and West Germany and the Union of Soviet Socialist Republic. 3 units. Prerequisite: Pol Sci 11 and 14 or consent

174 **Government and Politics of Latin America.** Comparison of the nature and dynamics of politics in selected Latin American countries. 3 units. Prerequisite: Pol Sci 11 and 14

175 **Political Systems of Israel and the Arab States.** 3 units. Prerequisite: Pol Sci 11 and 14

176 **African Political Systems.** Political systems of African States. 3 units. Prerequisite: Pol Sci 11 and 14

177 **Government and Politics of Asia I.** Political systems of Japan, the People's Republic of China, North Korea, Nationalist China and the Republic of South Korea. 3 units. Prerequisite: Pol Sci 11 and 14 or consent

178 **Government and Politics of Asia II.** Political systems of Burma, Thailand, Laos, Cambodia, Vietnam, Malaysia, Singapore and Indonesia. 3 units. Prerequisite: Pol Sci 11 and 14 or consent.

180 **International Politics.** Interplay on political forces in the international system; national power, national interest and goals, and settlement of international disputes. 3 units. Prerequisite: Pol Sci 11 and 14

182 **Philippine Foreign Policy.** Development of Philippine foreign policy; forces, techniques and problems in the formulation and implementation of Philippine foreign policy. 3 units. Prerequisite: Pol Sci 180.

183 **Introduction to Political Economy.** Fundamentals in political and economic analysis; analysis of the workings of the global economy and the interaction of political and economic forces in shaping the global order. 3 units. Prerequisite: Pol Sci 160 and Econ 11

185 **Public International Law.** Nature, development, sources, principles and problems of international law and its role in the development of a world community; selected cases. 3 units. Prerequisite: Pol Sci 182

190 **Practicum.** Apprenticeship in government offices and non-profit organizations with faculty supervision." (with 9 hours of class instructions and minimum of 135 practicum hours.) 3 units. Prerequisite: Junior standing

192 **Ancient and Medieval Political Theory.** Political thought from Plato to Machiavelli. 3 units. Prerequisite: Soc Sci 2

193 **Modern Political Theory.** Political thought after Machiavelli, with emphasis on the contemporary. 3 units. Prerequisite: Senior standing

195 **Asian Political Thought.** Main current of Asian political thought. 3 units. Prerequisite: Senior standing or consent.

196 **Philippine Political Thought.** Main currents of Philippine political thought. 3 units. Prerequisite: Senior standing

197 **Selected Themes in Political Theory.** Problem-driven issues or themes in contemporary political philosophy or in the history of political theory. Issues or themes can include the following topics: democracy, liberty, property, justice, post-modernity, feminism, environmentalism, nationalism, conservatism and extremism. 3 units. Prerequisite: Pol Sci 193 or consent

199 **Research in Political Science.** Approaches and methods of research in systematic politics. 3 units. Prerequisite: Junior standing

Psychology (Pysch)

11 **Principles of Psychology.** Principles of the science of psychology. 3 units.

101 **General Psychology.** The empirical and conceptual foundations of psychology in its main fields. Primarily for students who desire an intensive preparation for the more advanced courses in psychology. 3 units.

108 **Filipino Psychology.** 3 units. Prerequisite: Psych 101

110 **Psychological Statistics.** Statistical techniques in design analysis, and interpretation of psychological studies. 4 units. Prerequisite: Psych 11 or 101, and Math 11

115 **Experimental Psychology.** Principles of experimental inference: experimental design in behavior research. 5 units (3 lec, 6 lab). Prerequisite: Psych 11 or 101 and Psych 110.

118 **Field Methods in Psychology.** The principles and practice of psychological research in natural environments including systematic observation, unobtrusive measures, interviewing and field experiments. 3 units. Prerequisite: 6 units of psychology.

135 **Perception.** Principles of perception in the major sense modalities; methods of investigation. 3 units. Prerequisite: Psych 11 or 101, and 115, or consent

140 **Behavior Analysis.** Basic behavioral process in terms of experimental learning theory. 3 units. Prerequisite: Psych 11 or 101, or written consent

145 **Psychology of Language.** 3 units. Prerequisite: Psych 140 or consent

148 **Cognitive Psychology**. Information-processing approach to studying perception, attention, memory, language, representation, problem-solving, reasoning, judgment and decision making. 3 units. Prerequisite: Psych 101

150 **Personality.** Systematic approaches to the understanding of personality formation and dynamics. 3 units. Prerequisite: Psych 11 or 101, or written consent

155 **Abnormal Behavior.** 3 units. Prerequisite: Psych 140 or consent

162 **Psychological Measurement.** Theories and methods in the development, evaluation, and utilization of psychological tests and measures. 4 units (3 lec, 3 lab). Prerequisite: Psych 110

171 **Child Psychology.** A systematic study of the behavior of normal children with emphasis on socialization and personality development. 3 units. Prerequisite: Psych 11 or 101, and written consent

180 **Social Psychology.** Experimental investigation of group behavior, emotions, motivations and personality dynamics in social behavior and social learning, and perception in small groups and in cultural contexts. 3 units. Prerequisite: Written consent

182 **Group Processes.** Theories and methods for comprehending, analyzing, using and evaluating basic processes in group interaction. 3 units. Prerequisite: Consent.

183 **Psychology of Interpersonal and Group Communication.** Communication as a focal variable permeating social psychological phenomena such as a group structure processes, attitude change. 3 units. Prerequisite: Psych 11 or 101, and Psych 180, Comm 3

185 **Industrial Psychology.** Application of the knowledge from the theories and methods of Psychology to practical human problems in organization, definition and measurement of performance, prediction of performance, facilitation of performance (training, etc.), remuneration of performance and the organizational and social context of work. 3 units. Prerequisite: Psych 101 and 162.

186 **Design and Administration of Training Programs.** Perspectives on the fundamentals of the training process including underlying learning theories and training needs assessment, design, development and evaluation. 3 units. Prerequisite: Psych 185

195 **Special Topics in Psychology.** 3 units

199.1 **Research Methods in Psychology I.** Introduction to the various methods of research in Psychology through directed research activities. 3 units. Prerequisite: Psych 110, 115, and Senior standing

199.2 **Research Methods in Psychology II.** Conduct of psychology research project; data collection and analysis; research results presentation; writing of psychology research project. 3 units. Prerequisite: Psych 199.1 and Senior standing

Social Science (Soc Sci)

101 **Social Science Statistics.** Descriptive statistics, sampling, statistical inference (estimation and tests of hypotheses) applied to the social sciences. 3 units. Prerequisite: Math 11

105 **Gender Issues in Philippine Society.** Gender concepts, issues, and concerns in Philippine society. 3 units. Prerequisite: Junior standing

199.1 **Social Science Research I.** Strategies and techniques of social science research, includes planning and formulation of research design. 3 units. Prerequisite: Soc Sci 101 and senior standing.

199.2 **Social Science Research II.** Research into social science issues and problems leading to empirical verifications or analytical findings. 3 units. Prerequisite: Soc Sci 199.1 or Consent of the Division

Sociology (Socio)

11 **Introductory Sociology.** The nature, scope and basic concepts of sociology as an approach to the study of society with particular application to Philippine conditions. 3 units

101 **General Sociology.** Theoretical concerns of the fields of sociology and the various techniques in the study of social realities. 3 units. Prerequisite: Soc Sci 1

102 **Social Organization.** Analysis of the main forms of social organization in simple and complex societies; principles of integration and disintegration of social groups. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

113 **The Family.** Theories and researches on the family as a social institution. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

114 **The Philippine Social System.** Analysis of the social structure of Philippine society. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

122 **Rural Sociology.** Comparative studies of rural life. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

126 **Urban Sociology.** Comparative studies of urban communities; nature and consequences of urbanization. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

129 **Race and Ethnic Relations.** The nature and problems of racial and ethnic contacts. Study of intersocietal majority-minority relations, group conflict, prejudice and cooperation. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

132 **Sociology of Deviant Behavior.** Analysis of departure from model societal patterns and the relevant group processes including mechanisms of social control. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

140 **Socialization and Group Interaction.** Analysis of socialization as a process, social interaction in and between groups and aspects of collective behavior. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

145 **Collective Behavior.** Studies in mass behavior, social movements, and political action. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

160 **Society and Population.** Description and analysis of population aggregates; world population growth, population problems, and theories; the inter-relation of population and social structure. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

165 **Human Ecology.** Principles and methods of ecology applied to the study of the interaction of man, environment and technology. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

195 **Sociological Theories.** Background and trends in sociological thought from contemporary to the present. 3 units. Prerequisite: Socio 101 or equivalent.

199 **Methods of Sociological Research.** Survey of and introduction to various methods of sociological research. 3 units. Prerequisite: Socio 101 and 190 or senior standing and a course in statistics.

Visayan Studies

101 **Visayan History, Society and Culture.** Multi-disciplinary studies on Visayan society and culture. 3 units. Prerequisite: Junior standing

Graduate Courses

Anthropology (Anthro)

225 **Philippine Culture and Society.** 3 units.

289 **Special Problems in the Anthropology of Education.** 3 units.

Sociology (Socio)

220 **Social Institution.** Analysis of the family, economic, political, industrial systems and their relation to the community. 3 units.

PHYSICAL EDUCATION DEPARTMENT

Physical Education (PE)

1 F**oundation of Physical Fitness**. A course required of all college freshmen for one semester, to acquaint them of the benefits derived from regular physical activities as well as to enable them to design their own personal fitness program. 2 units.

2 **Elective Physical Education Activities for Beginners.** Choice of: Basketball, Baseball, Football, Softball, Volleyball, Badminton, Deck Tennis, Lawn Tennis, Table Tennis, *Sipa*, Archery, Bowling, Gymnastics, Track and Field, Swimming, Beginner's Ballet, Popular Ballroom Dance, International Folk Dance, Philippine Folk Dance, Hawaiian Dance, Tahitian, Adapted Physical Education. 2 units.

3 **Elective Physical Education Activities for Advanced Students.** Choice of: Skin Diving (Prerequisite: Swimming), Modern Jazz, Social Recreation, Camping, Advanced Tennis. 2 units.

DIVISION OF PROFESSIONAL EDUCATION

Graduate Courses

Education (EDUC)

280 **Practicum in Teaching.** Internship to provide the student with practical experience in teaching. 3 units (6 hours practice teaching and conferences to be arranged with instructor). Prerequisite: Methods course in the subject to be taught.

281 **Educational Technology: Design and Development.** Application of user-interface design principles for educational software development. 3 units (2 lec, 3 lab).

291 **Reading Course in Education.** Reading on special topics, conferences and reports. 2 units (may be repeated for additional credit; total credit not to exceed 6 units). Prerequisite: Graduate standing and consent.

298 **Special Problem in Education.** 4 units.

Counselor Education (EDCO)

201 **Guidance.** Concepts, principles and practices in guidance. 3 units

205 **Management of Student Personnel Services.** Organization, management and evaluation of student personnel services. 3 units. Prerequisite: EDCO 201

210 **Mental Hygiene.** Theories of individual and social adjustments, psychological dynamics and development analysis of behavior; roles of social institutions in the prevention of maladjustments. 3 units. Prerequisite: EDFD 110 or equivalent.

215 **Psychological Testing in Guidance.** Analysis of tests and supervised participation in psychological assessment. 3 units. Prerequisite: EDFD 160 or equivalent

220 **Theories and Techniques of Counseling.** Theories and processes of counseling including the use of tests and non-tests in appraising individuals. 3 units. Prerequisite: EDCO 201 and 210 or their equivalents or consent.

230 **Career Education.** Concepts, practices and research related to the choice of careers. 3 units. Prerequisite: EDCO 201

235 **Group Guidance.** Systems and programs for group guidance and counseling, including major concepts of group development and participation in and analysis of sensitivity training. 4 units. Prerequisite: 4 to 6 units in Guidance, Psychology, or Sociology

240 **Guidance Internship.** Supervised laboratory experience in counseling and other guidance functions. 4 units. Prerequisite: EDCO 201, 210, 215, 220.

250 **Guidance Workshop.** Development and preparation of materials in guidance. 4 units. Prerequisite: Consent

Educational Foundations (EDFD)

201 **Psycho-Philosophical Foundations of Education.** 3 units.

202 **Socio-cultural Foundations of Education.** 3 units.

211 **Psychological Foundations of Education.** Evaluation and measurements of educational products by the use of intelligence, personality and achievement tests. 2 units. Prerequisite: Graduate standing or consent.

212 **Advanced Educational Psychology.** A critical study of the educative processes and underlying psychological principles. 2 units. Prerequisite: EDFD 116

220 **Advanced Educational Philosophy.** The theories and views of educational philosophers and the social forces affecting education. 2 units. Prerequisite: EDFD 120.

230 **Educational Sociology.** An analysis of social forces affecting education. 2 units. Prerequisite: Socio 11 or equivalent or consent.

250 **Methods in Educational Research.** Research methods, concepts, processes, and tools as these relate to educational problems. 3 units. Prerequisite: EDFD 160 or equivalent.

252 **Statistical Methods Applied to Education.** Fundamentals in statistical theory; application of statistical theories and techniques to the solution of educational problems; designs and

analysis of statistical investigations. 3 units. Prerequisite: EDFD 160 or Psych 204 or Stat 101 or equivalent.

Language Teaching (EDL)

201 **Applied Linguistics for Communication Arts.** Introduces broad perspective basic language theories, principles and approaches to language analysis, as they apply to communication arts. 3 units. Prerequisite: Graduate standing or consent.

202 **Communicative Grammar of English and Phonetics for Teachers.** Grammatical structures of English relative to meanings, uses and situations, including phonetics. 3 units.

203 **Communicative Grammar of Filipino and Phonetics for Teachers.** Grammatical structures of Filipino relative to meanings, uses and situations, including phonetics. 3 units.

205 **Language Acquisition: Theories, Principles, and Research.** Psychological and sociological forces in second language acquisition, techniques in contrastive analysis; developmental studies including error analysis. 3 units. Prerequisite: EDL 201 or consent.

211 **Phonology of English for Teachers of English as a Second Language.** Phonology of English; speech improvement for teachers of English as a second language; preparation of instructional materials for the improvement of spoken English. 3 units. Prerequisite: Graduate standing or consent.

212 **Phonology of Filipino for Teachers of Filipino as a Second Language.** Phonology of Filipino; speech improvements for teachers of Filipino as a second language; preparation of instructional materials for the improvement of spoken Filipino. 3 units. Prerequisite: Graduate standing or consent.

221 **Second Language Teaching.** Approaches, methods, techniques and their application. 3 units. Prerequisite: EDL 205 or 211 or equivalent or consent.

222 **English for Special Purposes: Theory, Methods, and Materials.** Theory and practice of teaching English for special purposes. 3 units. Prerequisite: EDL 221 or COI

223 **Filipino for Academic Purposes: Theory, Methods, and Materials.** Theory and practice of teaching Filipino for academic discourse. 3 units. Prerequisite: EDL 221 or COI.

231 **Teaching Reading and Literary Appreciation in Bilingual Context .** Methods of teaching reading and literary appreciation at various levels of instruction in second language situations. 3 units. Prerequisite: EDL 221 or consent

241 **Language Test Development in Bilingual Context.** Principles of language test construction and their application in the preparation of sample language tests. 3 units. Prerequisite: EDFD 160 or Eng 116 or EDL 211 or equivalent and EDL 205 or consent.

251 **Production/Adaptation and Evaluation of Language Learning Materials.** Preparation of materials of instruction for language classes. 3 units. Prerequisite: EDL 221 or consent

252 **Production of Instructional Materials in Filipino.** Preparation of materials of instruction for classes in Filipino or any of the other Philippine languages. 2 units. Prerequisite: EDL 221 or consent.

261 **Supervision of Bilingual Education.** Concepts and techniques of supervision as applied to language instruction in the bilingual context. 3 units. Prerequisite: EDL 221 or 241

271 **Theory and Craft on Translation in the School Curriculum.** Translation for academic purposes: theory, methods and evaluation, and practice. 3 units. Prerequisite: COI

Mathematics (Math)

210.1 **Modern Algebra I.** Semi-groups and groups; rings; fields; groups with operators. Selected topics. 3 units. Prerequisite: COI

231 **Foundations of Mathematics.** The axiomatic methods, set theory, cardinal and ordinal numbers, continuum, mathematical logic. 3 units. Prerequisite: Math 131 or COI

242.1 **General Topology I.** Topological spaces, metric spaces, theory of convergence, bases, axioms of countability; subspaces; homeomorphisms. Selected topics. 3 units. Prerequisite: COI

299 **Graduate Seminar.** 3 units. Prerequisite: COI

Professional Education (EDP)

213 **Curriculum for Secondary Education.** Principles and practices of curriculum construction with special reference to the critical analysis of the secondary curriculum in Philippine schools. 2 units.

231 **Instructional Planning and Procedures in Social Studies.** Objectives, rationale, principles, methods, materials and practices in social studies. 3 units.

232 **Selected Topics in the Social Sciences for Social Studies Teachers, Part I.** Selected topics on basic concepts, principles of and approaches to Anthropology, Sociology and Psychology. 3 units.

233 **Selected Topics in the Social Sciences for Social Studies Teachers Part II.** Selected topics on basic concepts, principles of and approaches to Geography, Economics, Political Science and History. 3 units.

251 **Non-formal Education.** Strategies for planning and implementing non-formal education. 3 units.

Physics Education (Ed Physics)

201 **Fundamentals of Mechanics and Heat.** Mechanics, heat and thermodynamics. 3 units. Prerequisite: EDSC 225

202 **Fundamentals of Waves and Electromagnetism.** Waves, magnetism, electricity and elementary electronics. 3 units. Prerequisite: Ed Physics 201.

203 **Fundamentals of Optics and Modern Physics.** Optics, early quantum theory, and special theory of relativity. 3 units. Prerequisite: Ed Physics 202

Reading Education (EDR)

201 **The Reading Process.** The nature of the reading process; factors affecting reading. 3 units

220 **Instructional Materials in Reading.** Survey of instructional materials in reading. 2 units.

230 **Production of Instructional Materials in Reading.** Development of materials of instruction for classes in reading. 2 units. Prerequisite: EDR 201

241 **Construction of Reading Tests.** Development of standardized tests in reading. 3 units. Prerequisite: EDR 201 and 210.

Science Teaching (EDSC)

205 **Selected Topics in Biological Science for Science Teachers.** Selected topics to acquaint science teachers with recent developments in biological science. 3 units. Prerequisite: Major in science or consent.

206 **Selected Topics in Environmental Science.** Selected topics to acquaint teachers with recent developments in environmental science. 3 units. Prerequisite: Major in science or consent.

207 **Selected Topics in Physical Science.** Selected topics to acquaint teachers with recent trends in physical science and their applications to other fields. 3 units. Prerequisite: Major in science.

221 **Instructional Planning and Procedures for High School Mathematics, Part I.** Concepts, methods and materials for teaching high school arithmetic and algebra. 3 units. Prerequisite: Major in mathematics or consent.

222 **Instructional Planning and Procedures for High School Mathematics, Part II.** Concepts, methods and materials for teaching high school geometry. 3 units. Prerequisite: Major in mathematics or consent.

225 **Selected Topics in Mathematics for Secondary School Teachers, Part I.** Selected mathematics topics to acquaint high school mathematics and science teachers with recent developments. 3 units.

226 **Selected Topics in Mathematics for Secondary School Teachers, Part II.** Selected mathematics topics to acquaint high school mathematics and science teachers with recent developments. 3 units. Prerequisite: Consent

251 **Biology in Secondary Schools.** Materials and curriculum patterns for teaching biology in secondary schools. 3 units. Prerequisite: Major in biology or consent.

252 **Intensive Laboratory Course in High School Biology.** Modern trends in laboratory and demonstration techniques; practice in the use of improvised apparatus. 2 units (6 lab). Should be taken concurrently with EDSC 251.

261 **Foundations of Chemistry, Part I.** Fundamental principles and practical applications of chemistry with emphasis on atomic structure and chemical bonding. 3 units. Prerequisite: At least nine (9) units of Chemistry courses.

261.1 **Intensive Laboratory Course in Chemistry, Part I.** Principles and techniques of laboratory analyses using standard equipment. 1 unit (3 lab). Prerequisite: COI. Corequisite: EDSC 261

271 **Physics in Secondary Schools, Part I.** Materials and curriculum patterns for teaching physics in secondary schools. 3 units. Prerequisite: Major in physics or consent.

272 **Intensive Laboratory Course in High School Physics, Part I.** Modern trends in laboratory and demonstration techniques; practice in the use of improvised apparatus. 2 units (6 lab). Should be taken concurrently with EDSC 271.

273 **Physics in Secondary Schools, Part II.** Continuation of EDSC 271. 3 units. Prerequisite: EDSC 271.

274 **Intensive Laboratory Course in High School Physics, Part II.** Continuation of EDSC 272. 2 units (6 lab). Should be taken with EDSC 273. Prerequisite: EDSC 271 and 272.

279 **Selected Topics in Physics for Physics Teachers.** Selected topics in Physics to acquaint physics teachers with recent trends. 3 units. Prerequisite: Major in physics or consent.

Reading

200 **Foundations of Reading Instruction.** A basic course in reading including the physiological, psychological, and linguistic aspects; the nature of the reading process and the sequential development of reading from kindergarten to college. 3 units.

201 **Construction of Instructional Materials and Informal Reading Instruments.** Analysis and construction of materials for instruction, diagnosis, and evaluation. 3 units

202 **Administration and Supervision of the Reading Program in School.** Current practices and procedures in organizing, administering, and supervising reading programs. 3 units (1 lec, 6 practicum).

221 **Teaching Reading in the High School.** Emphasis on developmental reading programs with major focus on the role of reading in the learning process. 3 units (1 lec, 6 practicum)

222 **Teaching Reading in Content Areas in High School.** Techniques for teaching vocabulary, comprehension, study skills and increasing reading rate necessary for mastery of the academic disciplines. 3 units (1 lec, 6 practicum). Prerequisite: Reading 221

223 **Approaches to Reading and Literary Appreciation in the High School.** Methods of teaching reading and literary appreciation with emphasis on values pertinent to Philippine society; construction of lessons on varied literary types. 3 units (1 lec, 6 practicum). Prerequisite: Reading 221

224 **The Diagnosis of Reading Problems in High School.** Identification of specific reading problems, analysis of their possible causes and prescription of remedial procedures. 3 units (1 lec, 6 practicum). Prerequisite: Reading 221

225 **Remedial Reading in High School.** Practical experience of working with remedial readers; developing specifically described instruction based on diagnostic case study results and evaluating the effectiveness of remediation. 3 units (1 lec, 6 practicum). Prerequisite: Reading 221

BACHELOR OF ARTS IN COMMUNICATION AND MEDIA STUDIES

First Year First Semester

Course No.	Course Title	Units
GE AH 1 *		3
GE SSP 1*		3
GE SSP 2 *		3
GE MST 1		3
ENG 1	Fundamentals of English	3
CMS 11	Dynamics of Human Communication	3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		18

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE SSP 3*		3
GE SSP 4*		3
GE MST 2		3
SPEECH 136	Forms of Public Address	3
CMS 100	History of Media Communication	3
PE 2	Philippine Folk Dance	(2)
NSTP		(3)
		18

Second Year First Semester

Course No.	Course Title	Units
GE AH 3*		3
GE MST 3		3
CMS 101	Introduction to Media Communication	3
CMS 105	Technologies in Media Communication	3
CMS Elective 1		3
HILIGAYNON 10	Lingua Franca sa Nakatundang Visayas	3
PE 2	Sports	(2)
		18

Second Year Second Semester

Course No.	Course Title	Units
GE AH 4*		3
GE MST 4		3
FILIPINO 12	Pagbasa at Pagsulat	3
CMS 102	Theories of Media Communication	3
CMS 103	Media Laws and Ethics	3
CMS Elective 2		3
PE 3	Social Recreation	(2)
		18

Third Year First Semester

Course No.	Course Title	Units
CMS 104	Media and the Community	3
CMS 107	Fundamentals of Communication Planning	3
CMS Elective 3		3
CMS Elective 4		3
CMS Elective 5		3
CMS Elective 6		3
		18

Third Year Second Semester

Course No.	Course Title	Units
CMS 110	Development Media	3
CMS 196	Media Appreciation and Criticism	3
CMS 197	Media Research and Design	3
CMS Elective 7		3
CMS Elective 8		3
CMS Elective 9		3
		18

Summer

Course No.	Course Title	Units
CMS 191	Media Internship	**3**

Fourth Year First Semester

Course No.	Course Title	Units
GE AH 5*		3
CMS 198	Contemporary Issues in Media Communication	3
CMS Elective 10		3
CMS Elective 11		3
P.I. 100	The Life and Works of Jose Rizal	3
		15

Fourth Year Second Semester

Course No.	Course Title	Units
GE SSP 5*		3
GE MST 5		3
CMS 200	Undergraduate Thesis	3
CMS Elective 12		3
CMS Elective 13		3
		15

TOTAL NUMBER OF UNITS **141 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

BACHELOR OF ARTS (COMMUNITY DEVELOPMENT)

First Year First Semester

Course No.	Course Title	Units
Math 11	College Algebra	3
GE AH 1*		3
GE MST 1		3
GE SSP 1*		3
GE SSP 2*		3
GE SSP 3*		3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		18

First Year Second Semester

Course No.	Course Title	Units
CD 11	Introduction to Community Development	3
GE AH 2*		3
Pol Sci 14	Philippine Government and Politics	3
GE MST 2		3
Econ 11	Introductory Economics	3
GE SSP 4*		3
PE	Philippine Folk Dance	(2)
NSTP		(3)
		18

Second Year First Semester

Course No.	Course Title	Units
GE AH 3*		3
GE MST 3		3
GE SSP 5*		3
GE AH 4*		3
CD 101	Philippine Society and CD	3
CD 110	Theories and Indicators of Development	3
PE		(2)
		18

Second Year Second Semester

Course No.	Course Title	Units
GE AH 5*		3
Soc Sci 101	Social Science Statistics	3
CD 141	Rural and Urban Development Programs and Strategies	3
CD 122	Community Organization Mobilization and Advocacy	3
CD 151	Community Governance and Global Change	3
Major Elective		3
PE		(2)
		18

Third Year First Semester

Course No.	Course Title	Units
CD 127	Development Administration and Ethical Considerations in Development Work	3
CD 129	Resource Generations for Development	3
CD 166	Seminar in Gender and Development	3
CD 135	Intergenerational Approaches to Community Education	3
Major Elective		3
Major Elective		3
		18

Third Year Second Semester

Course No.	Course Title	Units
CD 180	Introductory Supervised Fieldwork	3
CD 147	Community Involvement in Environment Resource Management	3
CD 199.1	Research Methods	3
CD 168	Special Topics in CD	3
GE MST4		3
		15

Summer

Course No.	Course Title	Units
CD 181	Integrated Field Instruction	6

Fourth Year First Semester

Course No.	Course Title	Units
Major Elective		3
Major Elective		3
Major Elective		3
Major Elective		3
PI 100	The Life and Works of Jose Rizal	3
		15

Fourth Year Second Semester

Course No.	Course Title	Units
CD 199.2	Research Project in CD	3
GE MST5		3
Major Elective		3
Major Elective		3
Major Elective		3
		15

TOTAL NUMBER OF UNITS **141 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

BACHELOR OF ARTS (HISTORY)

First Year First Semester

Course No.	Course Title	Units
GE AH 1*		3
GE MST 1		3
GE SSP 1*		3
GE SSP 2*		3
Math 11	College Algebra	3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		15

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE SSP 3*		3
GE SSP 4*		3
GE MST 2		3
Econ 11	Introductory Economics	3
PE		(2)
NSTP		(3)
		15

Second Year First Semester

Course No.	Course Title	Units
GE AH 3*		3
GE AH 4*		3
GE MST 3		3
Hist 100	Introduction to World Civilizations	3
Fil 10 /Spanish I	Pag-uusap/Elementary Course	3
PE	Philippine Folk Dance	(2)
		15

Second Year Second Semester

Course No.	Course Title	Units
GE AH 5*		3
Soc Sci 101	Social Science Statistics	3
History 102	Modern Europe	3
History Elective		3
Fil 11 /Spanish II	Pagtatalakay/Elementary Course	3
Major Elective		3
PE		(2)
		18

Third Year First Semester

Course No.	Course Title	Units
History 114	Cultural History of the Philippines	3
History 154	Modern Southeast Asia	3
GE SSP 5*		3
GE MST 4		3
Major Elective		3
Major Elective		3
		18

Third Year Second Semester

Course No.	Course Title	Units
History 110	Colonial Philippines I	3
History 151	Modern East Asia	3
History 199	Historical Methodology	3
Major Elective		3
Major Elective		3
Major Elective		3
		18

Fourth Year First Semester

Course No.	Course Title	Units
Soc Sci 199.1	Social Science Research I	3
History 112	Colonial Philippines II	3
History 116	Philippine Nationalism	3
History Elective		3
Major Elective		3
Major Elective		3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
Soc Sci 199.2	Social Science Research II	3
GE MST 5		3
P.I. 100	The Life and Works of Jose Rizal	3
History Elective		3
Major Elective		3
Major Elective		3
		18

TOTAL NUMBER OF UNITS **135 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

BACHELOR OF ARTS (LITERATURE)

First Year First Semester

Course No.	Course Title	Units
GE AH1*		3
GE SSP1*		3
GE SSP2*		3
English 1	Fundamentals of English	3
Filipino 12	Pagbasa at Pagsulat	3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		15

First Year Second Semester

Course No.	Course Title	Units
GE AH2*		3
GE MST1		3
GE SSP3*		3
GE MST2		3
Math 152	Intro. to Comp. Software Application	3
CL 101	Literature and the Behavioral Sciences	3
PE		(2)
NSTP		(3)
		18

Second Year First Semester

Course No.	Course Title	Units
GE AH 3*		3
GE AH 4*		3
GE MST 3		3
GE SSP 4		3
GE MST 4		3
Lit. 121	Literary Theory and Criticism	3
PE		(2)
		18

Second Year Second Semester

Course No.	Course Title	Units
GE AH 5*		3
GE SSP 5*		3
Lit 130	Western Heritage 1	3
Lit 150	Introduction to Philippine Literature	3
CL 105	Literature and the Other Arts	3
Major Elective		3
PE		(2)
		18

Third Year First Semester

Course No.	Course Title	Units
Lit 131	Western Heritage II	3
Lit 140	Asian Heritage	3
Lit 151	Philippine Literature in English	3
Lit. 153	Philippine Literature in the Regional Languages	3
Major Elective		3
Major Elective		3
		18

Third Year Second Semester

Course No.	Course Title	Units
CL 192/193/194	Classical, Romantic, Modern Trends in Literature	3
Lit 111 or Lit 112	Poetry, Fiction or Drama Writing	3
Lit 160	Ethnicity and Post Colonial Trends in Literature	3
Lit 199	Research Method	3
Major Elective		3
Major Elective		3
		18

Fourth Year First Semester

Course No.	Course Title	Units
Lit 161	Literature, Gender and Environment	3
Lit 181/182/ 183/184/185	Genre Courses	3
Lit 200	Thesis	3
Major Elective		3
Major Elective		3
Major Elective		3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
GE MST 5		3
P.I. 100	The Life and Works of Jose Rizal	3
Lit 141	Middle Eastern Literature	3
Lit 170	Folklore and Popular Literature	3
Major Elective		3
Major Elective		3
		18

TOTAL NUMBER OF UNITS **141 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

BACHELOR OF ARTS (POLITICAL SCIENCE)-DOUBLE MAJOR (First Major, Political Science)

First Year First Semester

Course No.	Course Title	Units
GE AH 1*		3
GE MST 1		3
GE SSP 1*		3
GE SSP 2*		3
Pol Sci 11	Introduction to Political Science	3
Language Course		3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		18

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE MST 2		3
GE SSP 3*		3
Math 11	College Algebra	3
Pol Sci 14	Philippine Government and Politics	3
Language Course		3
PE		(2)
NSTP		(3)
		18

Second Year First Semester

Course No.	Course Title	Units
GE SSP 4*		3
GE AH 3*		3
GE MST 3		3
Soc Sci 101	Social Science Statistics	3
Pol Sci 160	Society, Politics and Government	3
Philo 171 or its equivalent	Ethics	3
PE		(2)
		18

Second Year Second Semester

Course No.	Course Title	Units
GE AH 4*		3
GE SSP 5*		3
Pol Sci 150	Philippine National and Local Administration	3
Pol Sci Elective		3
Qualified Elective		3
Econ 11	Introductory Economics	3
PE		(2)
		18

Third Year First Semester

Course No.	Course Title	Units
GE AH 5*		3
GE MST 4		3
Pol Sci 170	Comparative Western Politics	3
Pol Sci 180	International Politics	3
Pol Sci Elective		3
Qualified Elective		3
Qualified Elective		3
		21

Third Year Second Semester

Course No.	Course Title	Units
Pol Sci 185	International Law	3
Pol Sci 192	Ancient and Medieval Political Theory	3
Pol Sci Elective		3
Qualified Elective		3
Qualified Elective		3
Qualified Elective		3
		18

Fourth Year First Semester

Course No.	Course Title	Units
Pol Sci 190	Practicum	3
Soc Sci 199.1	Social Science Research I	3
Pol Sci Elective		3
Qualified Elective		3
Qualified Elective		3
Qualified Elective		3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
Soc Sci 199.2	Social Science Research II	3
Pol Sci 193	Modern Political Theory	3
PI 100	The Life and Works of Jose Rizal	3
GE MST 5		3
Pol Sci Elective		3
Qualified Elective		3
		18

TOTAL NUMBER OF UNITS **147 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

Note:

1. Qualified electives are taken in one discipline (CD, Economics, History, Psychology and Sociology) for double majors.
2. Pol Sci electives are taken in at least 2 subfields. Students can also take other Pol Sci electives from any UP unit subject to prior approval by the Division of Social Sciences.

BACHELOR OF ARTS (POLITICAL SCIENCE)-Single Major

First Year First Semester

Course No.	Course Title	Units
GE AH 1*		3
GE MST 1		3
GE SSP 1*		3
GE SSP 2*		3
Pol Sci 11	Introduction to Political Science	3
Language Course		3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		18

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE MST 2		3
GE SSP 3*		3
Math 11	College Algebra	3
Pol Sci 14	Philippine Government and Politics	3
Language Course		3
PE		(2)
NSTP		(3)
		18

Second Year First Semester

Course No.	Course Title	Units
GE SSP 4*		3
GE AH 3*		3
GE MST 3		3
Soc Sci 101	Social Science Statistics	3
Pol Sci 160	Society, Politics and Government	3
Philo 171 or its equivalent	Ethics	3
PE		(2)
		18

Second Year Second Semester

Course No.	Course Title	Units
GE AH 4*		3
GE SSP 5*		3
Pol Sci 150	Philippine National and Local Administration	3
Pol Sci Elective		3
Qualified Elective		3
Econ 11	Introductory Economics	3
PE		(2)
		18

Third Year First Semester

Course No.	Course Title	Units
GE AH 5*		3
GE MST 4		3
Pol Sci 170	Comparative Western Politics	3
Pol Sci 180	International Politics	3
Pol Sci Elective		3
Pol Sci Elective		3
Qualified Elective		3
		21

Third Year Second Semester

Course No.	Course Title	Units
Pol Sci 185	International Law	3
Pol Sci 192	Ancient and Medieval Political Theory	3
Pol Sci Elective		3
Pol Sci Elective		3
Qualified Elective		3
Qualified Elective		3
		18

Fourth Year First Semester

Course No.	Course Title	Units
Pol Sci 190	Practicum	3
Soc Sci 199.1	Social Science Research I	3
Pol Sci Elective		3
Pol Sci Elective		3
Qualified Elective		3
Qualified Elective		3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
Soc Sci 199.2	Social Science Research II	3
Pol Sci 193	Modern Political Theory	3
PI 100	The Life and Works of Jose Rizal	3
GE MST 5		3
Pol Sci Elective		3
Qualified Elective		3
		18

TOTAL NUMBER OF UNITS **147 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

Qualified electives are taken in other disciplines. (Community Development, Economics, History, Psychology, Sociology).

Pol Sci electives are taken in at least 2 subfields. Students can also take other Political Science electives from any UP unit subject to prior approval by the Division of Social Sciences

BACHELOR OF ARTS (PSYCHOLOGY)

First Year First Semester

Course No.	Course Title	Units
GE AH 1*		3
GE MST 1		3
GE SSP 1*		3
GE SSP 2*		3
GSP SSP 3*		3
Math 11	College Algebra	3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		18

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE MST 2		3
GE SSP 4*		3
GE SSP 5*		3
Econ 11	Introductory Economics	3
Psych 101	General Psychology	3
PE		(2)
NSTP		(3)
		18

Second Year First Semester

Course No.	Course Title	Units
Socio 101	General Sociology	3
GE AH 3*		3
GE AH 4*		3
GE MST 3		3
Psych 110	Psychological Statistics	4
Psych 140	Behavior Analysis	3
PE		(2)
		19

Second Year Second Semester

Course No.	Course Title	Units
GE AH 5*		3
Socio 114	Philippine Social System	3
Psych 115	Experimental Psychology	5
Psych 180	Social Psychology	3
Major Elective		3
PE		(2)
		17

Third Year First Semester

Course No.	Course Title	Units
Psych 118	Field Methods in Psychology	3
Psych 150	Personality	3
Psych 162	Psychological Measurement	4
Psych Elective		3
Major Elective		3
Major Elective		3
		19

Third Year Second Semester

Course No.	Course Title	Units
GE MST 4		3
Psych 155	Abnormal Behavior	3
Psych Elective		3
CL 101	Literature and the Behavioral Sciences	3
Major Elective		3
Major Elective		3
		18

Fourth Year First Semester

Course No.	Course Title	Units
Psych Elective		3
Psych Elective		3
Psych 199.1	Research Methods in Psychology I	3
Major Elective		3
Major Elective		3
Major Elective		3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
GE MST 5		3
Psych Elective		3
Major Elective		3
Major Elective		3
Psych 199.2	Research Methods in Psychology II	3
PI 100	The Life and Works of Jose Rizal	3
		18

TOTAL NUMBER OF UNITS **145 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

Senior Standing: Completed at least 90 units of credit or more; including Psych 110, 115 and 118.
Elective Courses: These courses should be distributed in at least two other disciplines different from but complementary to the major discipline. Courses in any of the second major areas may also be taken as major electives.
Prerequisites of major elective courses should be complied with accordingly.

BACHELOR OF ARTS (SOCIOLOGY)

First Year First Semester

Course No.	Course Title	Units
GE AH 1*		3
GE MST 1		3
GE SSP 1*		3
GE SSP 2*		3
Math 11	College Algebra	3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		15

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE SSP 4*		3
GE SSP 3*		3
GE MST 2		3
Econ 11	Introductory Economics	3
Socio 101	General Sociology	3
PE		(2)
NSTP		(3)
		18

Second Year First Semester

Course No.	Course Title	Units
GE SSP 5*		3
GE AH 3*		3
GE AH 4*		3
GE MST 3		3
Socio 122	Rural Sociology	3
PE		(2)
		15

Second Year Second Semester

Course No.	Course Title	Units
GE AH 5*		3
Socio 114	Philippine Social System	3
Socio 140	Socialization and Group Interaction	3
Soc Sci 101	Social Science Statistics	3
Anthro 181	Social Anthropology	3
Major Elective		3
PE		(2)
		18

Third Year First Semester

Course No.	Course Title	Units
Socio 102	Social Organization	3
Socio Elective		3
Socio Elective		3
GE MST 4		3
Major Elective		3
Major Elective		3
		18

Third Year Second Semester

Course No.	Course Title	Units
Socio 160	Society and Population	3
Socio Elective		3
Socio Elective		3
Major Elective		3
Major Elective		3
Major Elective		3
		18

Fourth Year First Semester

Course No.	Course Title	Units
Socio 195	Sociological Theories	3
Soc Sci 199.1	Social Science Research I	3
Major Elective		3
Major Elective		3
Major Elective		3
		15

Fourth Year Second Semester

Course No.	Course Title	Units
GE MST 5		3
Socio Elective		3
Soc Sci 199.2	Social Science Research II	3
PI 100	The Life and Works of Jose Rizal	3
Major Elective		3
		15

TOTAL NUMBER OF UNITS **132 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

Major courses in two or more for single majors or, courses for the second major for double majors

BACHELOR OF SCIENCE IN APPLIED MATHEMATICS

First Year First Semester

Course No.	Course Title	Units
GE AH 1 *		3
GE SSP 1*		3
GE SSP 2 *		3
GE MST 1		3
Math 17	Algebra and Trigonometry	5
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		17

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE MST 2		3
Math 19	Advanced Algebra	3
Math 20	Euclidean and Non-Euclidean	3
Math 53	Elementary Analysis I	5
P.E.		(2)
NSTP		(3)
		17

Second Year First Semester

Course No.	Course Title	Units
Math 54	Elementary Analysis II	5
Math 131	Logic and Set Theory	3
Stat 104	Descriptive Statistics	3
Physics 74	Foundations of Physics I	4
Econ 11	Introductory Economics	3
PE		(2)
		18

Second Year Second Semester

Course No.	Course Title	Units
GE AH 3 *		3
Math 55	Elementary Analysis III	3
Math 108	Abstract Algebra	3
Physics 75	Foundation of Physics II	4
Stat 110	Non-Bayesian Probability	4
PE		**(2)**
		17

Third Year First Semester

Course No.	Course Title	Units
GE AH 4*		3
GE MST 3		3
Math 114	Linear Algebra	3
Math 121	Elementary Differential Equations	3
Math 153	Computer Programming I	3
Stat 111	Statistical Methods and Inference	4
		19

Third Year Second Semester

Course No.	Course Title	Units
GE AH 5*		3
GE SSP 3*		3
Math 140	Graph Theory and Combinatorics	3
Math 173	Numerical Methods I	3
Math 183	Linear and Integer Programming	3
Elective		3
		18

Summer

Course No.	Course Title	Units
Math 191	Praticum - elective	3

Fourth Year First Semester

Course No.	Course Title	Units
GE SSP 4*		3
GE SSP 5*		3
Math 123	Advanced Calculus I	3
Math 174	Numerical Methods II	3
Elective		3
Elective		3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
GE MST 4		3
Math 128	Complex Analysis I	3
Math 196	Mathematics Seminar	1
PI 100	The Life andWorks of Jose Rizal	3
Elective		3
Elective		3
		16

TOTAL NUMBER OF UNITS **143 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

BACHELOR OF SCIENCE (BIOLOGY)

First Year First Semester

Course No.	Course Title	Units
GE SSP 1*		3
Math 11	College Algebra	3
Geol 11	Principles of Geology	3
GE SSP 2*		3
Zoo 10	Fundamentals of Zoology	5
PE 1		(2)
NSTP		(3)
		17

First Year Second Semester

Course No.	Course Title	Units
GE AH 1*		3
GE MST 1*		3
Math 14	Plane Trigonometry	3
Bot 10	General Botany	5
Chem 11	General and Inorganic Chemistry	5
P.E. 2 (Swimming)		(2)
NSTP		(3)
		19

Second Year First Semester

Course No.	Course Title	Units
GE AH 2*		3
GE SSP 3*		3
Math 100	Introduction to Calculus	4
Chem 23	Inorganic Analytical Chemistry	5
Zoo 111	Invertebrate Zoology	3
Zoo 111.1	Invertebrate Zoology Laboratory	2
PE		(2)
		20

Second Year Second Semester

Course No.	Course Title	Units
GE AH 3 *		3
GE SSP 4*		3
Bot 111	Plant Morphoanatomy and Diversity	3
Bot 111.1	Plant Morphoanatomy and Diversity Laboratory	2
Bio 180	Statistical Methods in Biology	3
Chem 31	Elementary Organic Chemistry	**3**
Chem 31.1	Elementary Organic Chemistry Laboratory	**2**
PE		**(2)**
		19

Third Year First Semester

Course No.	Course Title	Units
Bio 120	General Microbiology	3
Bio 120.1	General Microbiology Laboratory	2
Physics 51	General Physics I	3
Physics 51.1	General Physics 1 Laboratory	1
Chem 40	Elementary Biochemistry	3
Chem 40.1	Elementary Biochemistry Laboratory	2
Zoo 102	Comparative Anatomy of Vertebrates	3
Zoo 102.1	Comparative Anatomy of Vertebrates Laboratory	2
		19

Third Year Second Semester

Course No.	Course Title	Units
Bio 160	Ecology	3
Physics 52	General Physics II	3
Physics 52.1	General Physics II Laboratory	1
Bio 150	Introduction to Cell and Molecular Biology	3
Bio 140	Elementary Genetics	3
Bio 140.1	Elementary Genetics Laboratory	1
Bot 121	Elementary Plant Physiology	5
		19

Summer

Course No.	Course Title	Units
Bio 160.1	Ecology Laboratory	2

Fourth Year First Semester

Course No.	Course Title	Units
GE AH 4*		3
GE SSP 5*		3
Free Elective		3
Bio 189	Technical Writing in Biology	3
PI 100	The Life and Works of Jose Rizal	3
Zoo 131	Introduction to Developmental Biology of Animals	3
Zoo 131.1	Introduction to Developmental Biology of Animals Laboratory	2
		20

Fourth Year Second Semester

Course No.	Course Title	Units
GE MST 2*		3
GE AH 5*		3
Zoo 120	Animal Physiology	3
Zoo 120.1	Animal Physiology Laboratory	2
Bio 196	Seminar in Biology	1
Bio 199	Research	3
Major Elective		3-5
		18-20

TOTAL NUMBER OF UNITS **153-155 units**

*Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

DO NOT ENROLL IN: Math 1, Nat Sci 1 and Nat Sci 2.

BACHELOR OF SCIENCE IN CHEMISTRY

First Year First Semester

Course No.	Course Title	Units
GE AH 1*		3
GE SSP 1*		3
Chem 16	General Chemistry I	5
Math 17	Algebra and Trigonometry	5
Math 152	Intro. To Computer Software Application	3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		19

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE SSP 2*		3
Chem 17	General Chemistry II	5
Math 53	Elementary Analysis I	5
Math 101	Elementary Statistics I	3
PE		(2)
NSTP		(3)
		19

Second Year First Semester

Course No.	Course Title	Units
GE SSP 3*		3
GE MST 1		3
Math 54	Elem. Analysis II	5
Chem 28	Quantitative Inorg. Analysis	3
Chem 28.1	Quantitative Inorg. Anal. Lab.	2
Physics 74	Foundation of Physics I	4
PE		(2)
		20

Second Year Second Semester

Course No.	Course Title	Units
GE AH 3*		3
GE SSP 4*		3
Chem 33	Organic Chemistry I	3
Chem 33.1	Organic Chemistry I Lab.	2
Physics 75	Foundation of Physics II	4
Biology 10	General Biology	5
PE		(2)
		20

Third Year First Semester

Course No.	Course Title	Units
GE AH 4*		3
Physics 76	Foundations of Physics III	4
Chem 34	Organic Chemistry II	3
Chem 34.1	Organic Chemistry II, Lab	2
Chem 116	Physical Chemistry I	5
		17

Third Year Second Semester

Course No.	Course Title	Units
GE AH 5*		3
Geology 11	Principles of Geology	3
Chem 117	Physical Chemistry II	5
Chem 126	Instrumental Methods	5
Elective		3
		19

Summer

Course No.	Course Title	Units
Chem 191	**Practicum**	5

Fourth Year First Semester

Course No.	Course Title	Units
Chem 189	Fund.of Envi. Chemistry	3
Chem 115	Inorganic Chemistry	3
Chem 190	Seminar	1
Chem 145	Biochemistry	3
Chem 145.1	Biochemistry Lab	2
Bio 120	General Microbiology	3
Bio 120.1	General Microbiology Lab	2
		17

Fourth Year Second Semester

Course No.	Course Title	Units
Elective		3
Chem 200	Undergraduate Thesis	3
GE SSP 5*		3
GE MST 2		3
P.I.100	The Life and Works of Jose Rizal	3
		15

TOTAL NUMBER OF UNITS **151 units**

Chemistry Electives:		Units
Chem 181	Applied Chemistry	3
Chem 182	Polymer Chemistry	3
Chem 183	The Chemistry and Processing of Sugar	3
Chem 184	Chemistry of Food and Food Products	3

Chemistry Electives:		Units
Chem 185	Chemistry of Natural Products	3
Chem 186	Aquatic Chemistry	3
Chem 187	Soil Chemistry	3
Chem 188	Chemical Toxicology	3

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

First Year First Semester

Course No.	Course Title	Units
GE AH 1*		3
GE MST 1		3
GE SSP 1*		3
CMSC 11	Introduction to Computer Science	3
Math 17	Algebra and Trigonometry	5
PE I	Foundations of Physical Fitness	(2)
NSTP		(3)
		17

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE MST 2		3
GE SSP 2*		3
CMSC 21	Fundamentals of Programming	3
CMSC 56	Discrete Mathematical Structures in Computer Science 1	3
Math 100	Introduction to Calculus	4
PE		(2)
NSTP		(3)
		19

Second Year First Semester

Course No.	Course Title	Units
GE AH 3*		3
GE SSP 3*		3
GE MST 3		3
CMSC 22	Fund.of Object-Oriented Programming	3
CMSC 57	Discrete Mathematical Structures in Computer Science 2	3
Physics 51	General Physics I	3
Physics 51.1	General Physics I, Lab	1
PE		(2)
		19

Second Year Second Semester

Course No.	Course Title	Units
GE AH 4*		3
GE SSP 4*		3
GE MST4*		3
CMSC 123	Data Structures	3
CMSC 130	(Logic Design and Digital Computer Circuits)	3
Physics 52	(General Physics II)	3
Physics 52.1	(General Physics II Lab)	1
PE		(2)
		19

Third Year First Semester

Course No.	Course Title	Units
GE AH 5*		3
CMSC 127	File Processing and Database Systems	3
CMSC 131	Introduction to Computer Organization and Machine Level Programming	3
CMSC 141	Automata and Language Theory	3
CMSC 128	Software Engineering I	3
Stat 105	Introduction to Statistical Analysis	3
		18

Third Year Second Semester

Course No.	Course Title	Units
Eng 10	Writing of Scientific Papers	3
CMSC 124	Design and Implementation of Programming Languages	3
CMSC 125	Operating Systems	3
CMSC129	Software Engineering 2	3
CMSC 132	Computer Architecture	3
CMSC 126	Web Engineering	3
		18

Summer

Course No.	Course Title	Units
CMSC 195	Practicum (at least 200 hours)	3

Fourth Year First Semester

Course No.	Course Title	Units
GE SSP 5 *		3
CMSC 137	Data Comm and Networking	3
CMSC 142	Design and Analysis of Algorithms	3
CMSC 198.1	Special Problem	3
CMSC 192	Ethical and Professional Issues in Computing	3
Elective		
Elective		3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
PI 100	The Life and Works of Jose Rizal	3
CMSC 198.2	Special Problem	2
Elective		3
Elective		3
Elective		3
Elective		3
		17

TOTAL NUMBER OF UNITS **148 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

Note: One of the Arts and Humanities (AH) except AH 1 must be Comm 2.

BACHELOR OF SCIENCE IN ECONOMICS

First Year First Semester

Course No.	Course Title	Units
GE AH 1*		3
GE SSP 1*		3
GE SSP 2*		3
GE MST 1		3
Math 17	Algebra and Trigonometry	5
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		17

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE SSP 3*		3
GE SSP 4*		3
GE MST 2		3
Math 100	Introduction to Calculus	4
Econ 11	Introductory Economics	3
PE		(2)
NSTP		(3)
		19

Second Year First Semester

Course No.	Course Title	Units
GE AH 3*		3
Econ 101	Macroeconomic Theory and Policy	3
Econ 102	Microeconomics	3
GE MST 3		3
GE AH4*		3
Math 101	Elementary Statistics	3
PE		(2)
		18

Second Year Second Semester

Course No.	Course Title	Units
GE AH 5*		3
Econ 115	Philippine Economic History	3
Econ 106	Elements of Mathematical Economics	3
GE SSP 5*		3
Econ 151	Public Economics	3
Math 152	Introduction to Computer Software Application	3
PE		(2)
		18

Third Year First Semester

Course No.	Course Title	Units
English 10	Writing of Scientific Paper	3
Econ 131	Quantitative Economics	4
Econ 153	Project Evaluation	3
Econ 171	Economics of Agriculture	3
Econ Elective 1		3
Elective 1		3
		19

Third Year Second Semester

Course No.	Course Title	Units
Econ 109	History of Economic Doctrines	3
Econ 172	Resource and Environmental Economics	3
Econ 191	Development Economics	3
Econ Elective		3
GE MST 4		3
Elective 2		3
		18

Fourth Year First Semester

Course No.	Course Title	Units
Econ 174	Economics of Fisheries	3
Econ 196	Urban and Regional Economics	3
Econ 199.1	Economics Research I	3
Elective 3		3
Elective 4		3
		15

Fourth Year Second Semester

Course No.	Course Title	Units
Econ 199.2	Economics Research II	3
Elective 5		3
Elective 6		3
P.I. 100	The Life and Works of Jose Rizal	3
Econ Elective 3		3
		15

TOTAL NUMBER OF UNITS **139 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

Major Electives and Courses in Other Disciplines (27 units)

3	Economics electives in area/stream	9
3	Recommended electives from other fields	9
3	Electives taken per recommendation by the college	9

BACHELOR OF SCIENCE IN PUBLIC HEALTH

First Year First Semester

Course No.	Course Title	Units
G.E. AH 1*		3
G.E. MST 1		3
G.E. MST 2		3
G.E. SSP 1*		3
Math 17	Algebra and Trigonometry	5
P.E. 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		17

First Year Second Semester

Course No.	Course Title	Units
G.E. AH 2*		3
G.E. AH 3*		3
G.E. MST 3		3
G.E. SSP 2*		3
G.E. SSP 3*		3
Chem 16	General Chemistry I	5
P. E.		(2)
NSTP		(3)
		20

Second Year First Semester

Course No.	Course Title	Units
G.E. AH 4*		3
G.E. SSP 4*		3
Chem 17	General Chemistry II	5
Physics 21	Introductory Physics	4
Zoo 10	Fundamentals of Zoology	5
P.E.		(2)
		20

Second Year Second Semester

Course No.	Course Title	Units
PH 101	Health Challenges in Island Contexts	3
Chem 28	Quantitative Inorganic Analysis Pre/co-requisite/s: Chem 17	3
Chem 28.1	Quantitative Inorganic Analysis Laboratory	2
Chem 31	Elementary Organic Chemistry	3
Chem 31.1	Elementary Organic Chemistry Laboratory	2
Zoo 102	Comparative Anatomy of Vertebrates	3
Zoo 102.1	Comparative Anatomy of Vertebrates Laboratory	2
P.E.		(2)
		18

Third Year First Semester

Course No.	Course Title	Units
PH 121	Gross and Microscopic Anatomy	5
PH 131	Physiology	3
PH 141	Biostatistics for Public Health	4
PH 151	Principles of Microbiology	4
PH 161	Human Biochemistry	4
		20

Third Year Second Semester

Course No.	Course Title	Units
G.E. AH 5		3
PH 122	General Pathology	5
PH 152	Medical and Public Health Microbiology	5
PH 162	Nutrition	3
PH 172	Medical Helminthology and Protozoology	4
		20

Summer

Course No.	Course Title	Units
PH 175	Environmental Health	3
PH 186	Public Health Administration and Health Education	3
		6

Fourth Year First Semester

Course No.	Course Title	Units
G.E. MST 4		3
G.E. SSP 5*		3
PI 100	The Life and Works of Jose Rizal	3
PH 166	Clinical Chemistry	4
PH 180	Epidemiology	3
PH 184	Clinical Microscopy	5
		21

Fourth Year Second Semester

Course No.	Course Title	Units
PH 147	Genetics	2
PH 177	Medical Entomology	3
PH 195	Public Health Practice	5
PH 196	Seminars	1
PH 199	Special Studies and Research	2
		13

TOTAL NUMBER OF UNITS **155 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

DO NOT ENROLL IN: Nat. Sci. 1

BACHELOR OF SCIENCE IN STATISTICS

First Year First Semester

Course No.	Course Title	Units
GE AH 1 *		3
GE SSP 1*		3
GE SSP 2 *		3
Math 17	Algebra and Trigonometry	5
Stat 104	Descriptive Statistics	3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		17

First Year Second Semester

Course No.	Course Title	Units
GE AH 2 *		3
GE MST 1		3
GE SSP 3*		3
Math 53	Elementary Analysis I	5
Stat 117	Mathematics for Statistics	3
PE		(2)
NSTP		(3)
		17

Second Year First Semester

Course No.	Course Title	Units
GE AH 3*		3
GE MST 2		3
Math 54	Elementary Analysis II	5
Math 153	Computer Programming	3
Stat 121	Probability Theory I	3
PE		(2)
		17

Second Year Second Semester

Course No.	Course Title	Units
GE AH 4*		3
GE SSP 4*		3
GE SSP 5*		3
Math 55	Elementary Analysis III	3
Math 114	Linear Algebra	3
Stat 122	Probability Theory II	3
PE		(2)
		18

Third Year First Semester

Course No.	Course Title	Units
GE AH 5*		3
Stat 131	Parametric Statistical Inference	4
Stat 138	Use of Stat Software Packages	3
Math 121	Elementary Differential Equations	3
GE MST 3		3
CS/Math Elec		3
		19

Third Year Second Semester

Course No.	Course Title	Units
GE MST 4		3
Stat 129	Regression and Correlation Analysis	3
Stat 132	Non-parametric Stat Inference	3
Stat 140	Introduction to Sample Surveys	3
Elective (Stat)		3
Elective (Stat)		3
		18

Fourth Year First Semester

Course No.	Course Title	Units
Stat 130	Intro to Experimental Designs	3
Stat 145	Intro to Time Series Analysis and Forecasting	3
Stat 141	Multivariate Theory	3
Stat 149	Intro to Categorical Data Analysis	3
Elec (CS/Math)		3
Elective (Stat)		3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
Stat 150	Statistical Operations	3
Stat 142	Applied Multivariate Analysis	3
PI 100	The Life and Works of Jose Rizal	3
Elective (Stat)		3
Elective (Stat)		3
Elective		3
		18

TOTAL NUMBER OF UNITS **142 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

MASTER OF CHEMISTRY

Plan A
(For Full-time Students)

First Year First Trimester

Course No.	Course Title	Units
Chem 210	Chemometrics	3
Chem 213	Selected Topics in Organic Chemistry	3
Chem 217	Dynamics of Chemistry	3
Chem 217.1	Applications of the Dynamics in Chemistry	2
		11

First Year Second Trimester

Course No.	Course Title	Units
Chem 224	Selected Topics in Biochemistry	3
Chem 225	Advanced Inorganic Chemistry	3
Elective		3
		9

First Year Third Trimester

Course No.	Course Title	Units
Chem 237	Selected Topics in Physical Chemistry	3
Chem 238	Selected Topics in Analytical Chemistry	3
Chem 238.1	Selected Topics in Analytical Chemistry Laboratory	2
Chem 296	Special Problem in Chemistry	4
		12

TOTAL NUMBER OF UNITS **32 units**

Plan B
(For Full-time Students)

First Year First Trimester

Course No.	Course Title	Units
Chem 210	Chemometrics	3
Chem 213	Selected Topics in Organic Chemistry	3
Chem 217	Dynamics of Chemistry	3
Chem 217.1	Applications of the Dynamics in Chemistry	2
		11

First Year Second Trimester

Course No.	Course Title	Units
Chem 224	Selected Topics in Biochemistry	3
Chem 225	Advanced Inorganic Chemistry	3
Chem 274	Separation and Purification Techniques	3
Elective		3
		12

First Year Third Trimester

Course No.	Course Title	Units
Chem 237	Selected Topics in Physical Chemistry	3
Chem 238	Selected Topics in Analytical Chemistry	3
Chem 238.1	Selected Topics in Analytical Chemistry Laboratory	2
Chem 290	Graduate Seminar	1
Elective		3
		12

TOTAL NUMBER OF UNITS **35 units**

MASTER OF CHEMISTRY

Plan A
(For Part-time Students)

First Year First Trimester

Course No.	Course Title	Units
Chem 210	Chemometrics	3
Chem 217	Dynamics of Chemistry	3
Chem 217.1	Applications of the Dynamics in Chemistry	2
		8

First Year Second Trimester

Course No.	Course Title	Units
Chem 213	Selected Topics in Organic Chemistry	3
Chem 225	Advanced Inorganic Chemistry	3
		6

First Year Third Trimester

Course No.	Course Title	Units
Chem 224	Selected Topics in Biochemistry	3
Chem 238	Selected Topics in Analytical Chemistry	3
Chem 238.1	Selected Topics in Analytical Chemistry Laboratory	2
		8

Second Year First Trimester

Course No.	Course Title	Units
Chem 237	Selected Topics in Physical Chemistry	3
Elective		3
		6

Second Year Second Trimester

Course No.	Course Title	Units
Chem 296	Special Problem in Chemistry	4
		4

TOTAL NUMBER OF UNITS **32 units**

Plan B
(For Part-time Students)

First Year First Trimester

Course No.	Course Title	Units
Chem 210	Chemometrics	3
Chem 217	Dynamics of Chemistry	3
Chem 217.1	Applications of the Dynamics in Chemistry	2
		8

First Year Second Trimester

Course No.	Course Title	Units
Chem 213	Selected Topics in Organic Chemistry	3
Chem 225	Advanced Inorganic Chemistry	3
		6

First Year Third Trimester

Course No.	Course Title	Units
Chem 224	Selected Topics in Biochemistry	3
Chem 238	Selected Topics in Analytical Chemistry	3
Chem 238.1	Selected Topics in Analytical Chemistry Laboratory	2
		8

Second Year First Trimester

Course No.	Course Title	Units
Chem 237	Selected Topics in Physical Chemistry	3
Chem 290	Graduate Seminar	1
Elective		3
		7

Second Year Second Trimester

Course No.	Course Title	Units
Chem 274	Separation and Purification Techniques	3
Elective		3
		6

TOTAL NUMBER OF UNITS **35 units**

MASTER OF SCIENCE (BIOLOGY)

Full-Time

First Year First Semester

Course No.	Course Title	Units
Bio 221	Advanced Animal and Plant Physiology	3
Bio 250	Advanced Cell and Molecular Biology	3
Elective 1		3
Elective 2		5
		12

First Year Second Semester

Course No.	Course Title	Units
Bio 260	Advanced Ecology	3
Bio 291	Experimental Design and Statistical Analysis	3
Elective 3		3
Elective 4		5
		12

Summer

Course No.	Course Title	Units
Bio 299	Practicum in Biological Research	3

Second Year First Semester

Course No.	Course Title	Units
Bio 296	Seminar	1
Bio 300	Master's Thesis	6
		7

TOTAL NUMBER OF UNITS **34 units**

Part-Time

First Year First Semester

Course No.	Course Title	Units
Bio 221	Advanced Animal and Plant Physiology	3
Bio 250	Advanced Cell and Molecular Biology	3
		6

First Year Second Semester

Course No.	Course Title	Units
Bio 260	Advanced Ecology	3
Bio 291	Experimental Design and Statistical Analysis	3
		6

First Year First Semester

Course No.	Course Title	Units
Elective 1		3
Elective 2		3
		6

First Year Second Semester

Course No.	Course Title	Units
Elective 3		3
Elective 3		3
		6

Summer

Course No.	Course Title	Units
Bio 299	Practicum in Biological Research	3

Third Year First Semester

Course No.	Course Title	Units
Bio 296	Seminar	1
Bio 300	Master's Thesis	6
		7

TOTAL NUMBER OF UNITS **34 units**

MASTER OF EDUCATION (BIOLOGY)

Plan B

Educational Foundation (9 units)

Course No.	Course Title	Units
EDFD 201	Psycho-Philosophical Foundations of Education	3
EDFD 202	Socio-cultural Foundations of Education	3
EDFD 250	Methods in Educational Research	3

Major Area (24 units)

Course No.	Course Title	Units
EDSC 205	Selected Topics in Biological Science for Science Teachers	3
Bio 220	Advanced Cell Biology	3
Bio 211	Critique of Systematics	3
Bio 221	Advanced Animal and Plant Physiology	3
Bio 240	Advanced Genetics	3
Bio 260	Advanced Ecology	3
Bio 209	Methods and Principles of Plant Taxonomy	3
Educ 280	Practicum in Teaching	3

Cognate (3 units)

Course No.	Course Title	Units
EDSC 266*		3

TOTAL NUMBER OF UNITS **36 units**

* revised to Chem 213

MASTER OF EDUCATION (ENGLISH AS A SECOND LANGUAGE)

First Year First Trimester

Course No.	Course Title	Units
EDFD 201	Psycho-Philosophical Foundations of Education	3
EDL 205	Language Acquisition: Theories, Principles, and Research	3
		6

First Year Second Trimester

Course No.	Course Title	Units
EDFD 202	Socio-cultural Foundations of Education	3
EDL 201	Applied Linguistics for Communication Arts	3
		6

First Year Third Trimester

Course No.	Course Title	Units
EDL 241	Language Test Development in Bilingual Context	3
EDL 221	Second Language Teaching	3
		6

Second Year First Trimester

Course No.	Course Title	Units
EDL 202/222/223/261*		3
EDFD 25	Methods in Educational Research	3
		6

Second Year Second Trimester

Course No.	Course Title	Units
EDL 231	Teaching Reading and Literary Appreciation in Bilingual Context	3
EDL 251	Production/Adaptation and Evaluation of Language Learning Materials	3
		6

First Year Third Trimester

Course No.	Course Title	Units
EDL 261	Supervision of Bilingual Education	3
Cognate		3
		6

TOTAL NUMBER OF UNITS **36 units**

* See Language Teaching (EDL) courses

MASTER OF EDUCATION (FILIPINO)

First Year First Trimester

Course No.	Course Title	Units
EDFD 201	Psycho-Philosophical Foundations of Education	3
EDL 205	Language Acquisition: Theories, Principles, and Research	3
		6

First Year Second Trimester

Course No.	Course Title	Units
EDFD 202	Socio-cultural Foundations of Education	3
EDL 221	Second Language Teaching	3
		6

First Year Third Trimester

Course No.	Course Title	Units
EDL 201/203/223/261*		3
Filipino 220	Seminar: Leksikograpiya ng Wikang Pambansa	3
		6

Second Year First Trimester

Course No.	Course Title	Units
EDFD 250	Methods in Educational Research	3
Filipino 295	Mga Natatanging Suliranin sa Wikang Filipino	3
		6

Second Year Second Trimester

Course No.	Course Title	Units
EDL 271	Theory and Craft on Translation in the School Curriculum	3
Cognate		3
		6

Second Year Third Trimester

Course No.	Course Title	Units
EDL 241/251*		3
EDL 231	Teaching Reading and Literary Appreciation in Bilingual Context	3
		6

TOTAL NUMBER OF UNITS **36 units**

* See Language Teaching (EDL) courses

MASTER OF EDUCATION (GUIDANCE)

Educational Foundation (9 units)

Course No.	Course Title	Units
EDFD 201	Psycho-Philosophical Foundations of Education	3
EDFD 202	Socio-cultural Foundations of Education	3
EDFD 250	Methods in Educational Research	3

Major Area (26 units)

Course No.	Course Title	Units
EDCO 201	Guidance	3
EDCO 220	Theories and Techniques of Counseling	3
EDCO 205	Management of Student Personnel Services	3
EDCO 250	Guidance Workshop	4
EDCO 235	Group Guidance	4
EDCO 215	Psychological Testing in Guidance	3
EDCO 230	Career Education	3
EDCO 210	Mental Hygiene	3

Cognate (3 units)

Course No.	Course Title	Units
EDAD 202		3

TOTAL NUMBER OF UNITS **38 units**

MASTER OF EDUCATION (MATHEMATICS)

Educational Foundation (9 units)

Course No.	Course Title	Units
EDFD 201	Psycho-Philosophical Foundations of Education	3
EDFD 202	Socio-cultural Foundations of Education	3
EDFD 250	Methods in Educational Research	3

Major Area (24 units)

Course No.	Course Title	Units
EDSC 221	Instructional Planning and Procedures for High School Mathematics, Part I	3
EDSC 222	Instructional Planning and Procedures for High School Mathematics, Part II	3
EDSC 225	Selected Topics in Mathematics for Secondary School Teachers, Part I	3
EDSC 226	Selected Topics in Mathematics for Secondary School Teachers, Part II	4
Math 231	Foundation of Mathematics	4
Math 242.1	General Topology I	3
Math 210.1	Modern Algebra I	3
Math 299	Graduate Seminar	3

Cognate (3 units)

Course No.	Course Title	Units
EDSC 266*		3
EDSC 279	Selected Topics in Physics for Physics Teachers	3

TOTAL NUMBER OF UNITS **36 units**

* revised to Chem 213

MASTER OF EDUCATION (PHYSICS)

Plan A

First Year First Trimester

Course No.	Course Title	Units
EDSC 271	Physics in Secondary Schools, Part I	3
EDSC 272	Intensive Laboratory Course in High School Physics, Part I	2
		5

First Year Second Trimester

Course No.	Course Title	Units
EDSC 273	Physics in Secondary Schools, Part II	3
EDSC 274	Intensive Laboratory Course in High School Physics, Part II	2
		5

First Year Third Trimester

Course No.	Course Title	Units
EDFD 201	Psycho-Philosophical Foundations of Education	3
EDSC 225	Selected Topics in Mathematics for Secondary School Teachers, Part I	3
		6

Second Year First Trimester

Course No.	Course Title	Units
EDFD 250	Methods in Educational Research	3
ED Physics 201	Fundamentals of Mechanics and Heat	3
		6

Second Year Second Trimester

Course No.	Course Title	Units
EDUC 280	Practicum in Teaching	3
Ed Physics 202	Fundamentals of Waves and Electromagnetism	3
		6

Second Year Third Trimester

Course No.	Course Title	Units
Ed Physics 203	Fundamentals of Optics and Modern Physics	3
EDUC 298	Special Problem in Education	4
		7

TOTAL NUMBER OF UNITS **35 units**

MASTER OF EDUCATION (PHYSICS)

Plan B

First Year First Trimester

Course No.	Course Title	Units
EDSC 271	Physics in Secondary Schools, Part I	3
EDSC 272	Intensive Laboratory Course in High School Physics, Part I	2
		5

First Year Second Trimester

Course No.	Course Title	Units
EDSC 273	Physics in Secondary Schools, Part II	3
EDSC 274	Intensive Laboratory Course in High School Physics, Part II	2
		5

First Year Third Trimester

Course No.	Course Title	Units
EDSC 207	Selected Topics in Physical Science	3
EDSC 225	Selected Topics in Mathematics for Secondary School Teachers, Part I	3
EDSC 279	Selected Topics in Physics for Physics Teachers	3
		9

Second Year First Trimester

Course No.	Course Title	Units
EDFD 201	Methods in Educational Research	3
ED Physics 201	Fundamentals of Mechanics and Heat	3
		6

Second Year Second Trimester

Course No.	Course Title	Units
EDUC 280	Practicum in Teaching	3
Ed Physics 202	Fundamentals of Waves and Electromagnetism	3
		6

Second Year Third Trimester

Course No.	Course Title	Units
EDFD 250	Methods in Educational Research	3
EDUC 298	Special Problem in Education	4
		6

TOTAL NUMBER OF UNITS **37 units**

MASTER OF EDUCATION (READING)

Educational Foundation (9 units)

Course No.	Course Title	Units
EDFD 201	Psycho-Philosophical Foundations of Education	3
EDFD 202	Socio-cultural Foundations of Education	3
EDFD 250	Methods in Educational Research	3

Major Area (9 units)

Course No.	Course Title	Units
Reading 200	Foundations of Reading Instruction	3
Reading 201	Construction of Instructional Materials and Informal Reading Instruments	3
Reading 202	Administration and Supervision of the Reading Program in School	3

Methods Courses (15 units)

Course No.	Course Title	Units
Reading 221	Teaching Reading in the High School	3
Reading 222	Teaching Reading in Content Areas in High School	3
Reading 223	Approaches to Reading and Literary Appreciation in the High School	3
Reading 224	The Diagnosis of Reading Problems in High School	3
Reading 225	Remedial Reading in High School	3

Elective (3 units)

Course No.	Course Title	Units
EDL 201	Applied Linguistics for Communication Arts	3
EDL 221	Second Language Teaching	3
EDL 205	Language Acquisition: Theories, Principles, and Research	3

TOTAL NUMBER OF UNITS **36 units**

MASTER OF EDUCATION (SOCIAL STUDIES)

Educational Foundation (9 units)

Course No.	Course Title	Units
EDFD 201	Psycho-Philosophical Foundations of Education	3
EDFD 202	Socio-cultural Foundations of Education	3
EDFD 250	Methods in Educational Research	3

Major Area (14 units)

Course No.	Course Title	Units
EDP 231	Instructional Planning and Procedures in Social Studies	3
EDP 232	Selected Topics in the Social Sciences for Social Studies Teachers, Part I	3
EDP 233	Selected Topics in the Social Sciences for Social Studies Teachers Part II	3
EDP 213	Curriculum for Secondary Education	4
EDUC 280	Practicum in Teaching	4

Cognate (15 units)

Course No.	Course Title	Units
Anthro 225	Philippine Culture and Society	3
Anthro 289	Special Problems in the Anthropology of Education	3
Socio 220	Social Institution	3
Fil 217	Ang Balarila ng Wikang Pambansa	3
Fil 220	Seminar: Leksikograpiya ng Wikang Pambansa	3

TOTAL NUMBER OF UNITS **38 units**

COLLEGE OF FISHERIES AND OCEAN SCIENCES

In 1946, the Commonwealth Government of the Philippines established the Philippine School of Fisheries by virtue of Commonwealth Act No. 718 (e). The Philippine School of Fisheries, later renamed Philippine Institute of Fisheries Technology (PIFT), was placed under the supervision of the Bureau of Fisheries, Department of Agriculture and Natural Resources (DANR).

In January 1957, under the Reorganization Act (R.A. No. 997) and upon approval of then President Ramon Magsaysay, supervision of PIFT was handed from the DANR to the University of the Philippines. Upon the recommendation of the U.P. President Vicente G. Sinco, the Board of Regents approved the reorganization of the PIFT into the College of Fisheries on April 10, 1958. In the latter part of 1962, the college was transferred to its new home at Albert Hall in the U.P. Diliman campus from its then location in Port Area, Manila.

During the academic year 1975-76, the College of Fisheries and the U.P. College Iloilo began to offer fisheries curricular programs in Iloilo. Four years later on May 31, 1979, the Board of Regents approved the establishment of the U.P. Visayas (UPV) with the College of Fisheries as its nucleus and with its campus in Miagao, Iloilo. In June of the same year, the Board also formalized the fisheries academic offerings in Iloilo as the College of Fisheries Program in Iloilo.

Executive Order No. 628, signed by President Ferdinand E. Marcos on October 1, 1980, officially created the UPV as an autonomous unit of the U.P. System and it gave way to the eventual transfer of the College to Miagao. The Fisheries Education Loan Project, sponsored by the World Bank, funded the development of the College in its new site. The College was finally transferred to its present home in the UPV campus in Miagao in May, 1988.

VISION

A world-class institution in the fields of fisheries and aquatic sciences

MISSION

- Provide quality education in the field of fisheries and aquatic sciences;
- Conduct cutting edge and relevant researches in the fields of fisheries and aquatic sciences;
- Lead in the formulation and implementation of effective extension programs; and
- Advocate for policy directions in the utilization and management of fisheries and aquatic resources

ACADEMIC PROGRAMS

Undergraduate Program

Bachelor of Science in Fisheries

Graduate Programs

1. Master of Aquaculture
2. Master of Science in Fisheries
   Aquaculture
   Fisheries Biology
   Fish Processing Technology
3. Master of Marine Affairs
4. Ph. D. in Fisheries

CFOS COURSES

General Education Courses

Aquatic Science (Aqua Sci) – (MST)

1 **Fish Makes Sense.** The dynamic interaction between man and the aquatic environment: major fisheries concepts, issues and developments. 3 units.

16 **Fish Beyond Capture.** Introduction to concepts, principles and practices on the utilization of fish and other aquatic organisms. 3 units

Undergraduate Courses

Fisheries (Fish)

101 **Aquatic Fauna and Flora.** Biology of aquatic organisms, their distribution and evolution. 5 units (3 lec, 6 lab) Prerequisite: Biology 10

102 **Ichthyology.** Handling of live fish and low temperature preservation of fish and fishery products. 4 units (2 lec, 6 lab) Prerequisite: Fish 101

104 **Introduction to Fisheries Entrepreneurship.** The study of the theory and practice of entrepreneurship, including the strategies and application of the various management tasks and concerns in planning and managing a fisheries business enterprise. 3 units

107 **Aquatic Invertebrates.** Morphology, anatomy, and systematics of aquatic invertebrates, their biology and interrelationships with other aquatic biota. 3 units (2 lec, 3 lab) Prerequisite: Fish 101

109 **Physiology of Aquatic Organisms.** Physiology and life history of fishes and aquatic invertebrates. 3 units. Prerequisite: Fish 102

111 **Phycology.** Morphology, physiology, systematics and distribution of aquatic plants; their role and interrelationship with other aquatic organisms. 3 units (2 lec, 3 lab)

114 **Inland Fishing Gears.** Materials, construction and operation of gears used in inland Fisheries. 2 units (1 lec, 3 lab). Prerequisite: Math 14 and Fish 101.

115 **Nutrition of Aquatic Animals.** Principles of nutrition; nutrient requirements; ration formulation and practical feeding of selected finfishes and shellfishes. 3 units (1 lec, 6 lab) Prerequisite: Chem 40 and Fish 109

116 **Hatchery Management.** Application of the principles of reproductive and larval physiology of aquatic organisms in the design, construction, and management of hatchery facilities. 3 units (1 lec, 6 lab) Prerequisites: Fish 109 and Fish 125

117 **Health Management in Aquaculture.** Biology of pathogens and study of other causative agents of aquaculture organisms and their prevention and control. 3 units (2 lec, 3 lab) Prerequisite: Fish 102

118 **Fisheries Policies and Institutions.** Policies including laws affecting exploitation, protection and conservation of fishery resources; codes of conduct and technical standards for food safety and handling. 2 units

119 **Aquaculture Engineering.** Principles and methods of the morphometry of water bodies. Site selection, survey methodology, design, construction, installation and maintenance of aquaculture facilities. 4 units (2 lec, 6 lab) Prerequisite: Physics 21 and Fish 125

124 **Fisheries Extension.** Objectives and methodology of technology utilization, transfer and evaluation. 2 units Prerequisite: Senior Standing.

125 **Aquaculture Technologies** Principles and methods of aquaculture and application of other sciences (physical, chemical, biotechnological, medical) to cultivation of aquatic organisms; recent developments in aquaculture. 5 units (3 lec, 6 lab)

126 **Fundamentals of Aquaculture.** Principles, methods and practices of aquaculture. 3 units

127 **Fundamentals of Capture Fisheries.** Introduction to principles, methods and practices in capture fisheries. 3 units.

128 **Fundamentals of Post Harvest Fisheries.** Methods of fish preservation/processing, quality control, packaging and marketing of fish and fishery products; Fish post harvest waste management. 3 units

129 **Aquatic Resources and Ecology.** Fundamentals of ecology and management of exploited aquatic resources and ecosystem. 3 units

133 **Aquatic Ecosystems.** The study of different aquatic environments, and their chemical, physical, geological and biological components. 5 units (3 lec, 6 lab) Prerequisite: Chem 23

134 **GIS and Remote Sensing for Fisheries.** Geographic information systems and remote sensing applied to fisheries and ocean sciences. 3 units

137 **Fishing Technology.** Overview of Philippine capture fisheries; classification of fishing gears; materials for fishing gear; development of fishing gear technology. 3 units (2 lec, 3 lab) Prerequisite: Math 14

140 **Fish Stock Assessment.** Methods in assessing the size and status of fish stocks. 3 units (2 lec, 3 lab) Prerequisiste: Math 100, Math 101, Fish 102, Fish 137

147 **Fish Genetics.** Principles of cellular and molecular genetics of fish and other aquatic animals and plants, to include breeding and other genetic applications. 3 units (2 lec, 3 lab) Prerequisites: Fish 102, Chem 40 and Math 101

148 **Fisheries Post Harvest Technologies.** Handling, cold storage, curing and canning of fish and fishery products. 3 units (2 lec, 3 lab)

150 **Fisheries Management.** Principles and methods of managing aquatic resources in marine, brackish and fresh water ecosystems, including their protection and conservation. 3 units (2 lec, 3 lab) Prerequisite: Fish 133 and Fish 140

151 **Fishery Product Development and Value Addition.** Developing and value adding in fish and fishery products, including marketing, packaging and shelf-life determination. 3 units (2 lec, 3 lab) Prerequisite: Fish 148

154 **Fisheries Microbiology.** Bacteria, yeast, molds and parasites associated with fish; their characteristics and importance to fisheries. 3 units (2 lec, 3 lab) Prerequisite: Fish 101

155 **Chemical Evaluation of Water and Aquatic Products.** Chemical composition and standard methods of analysis of the aquatic environment and fishery products. 3 units (2 lec, 3 lab) Prerequisite: Fish 148, Chem 23, Chem 31 and Chem 31.1.

159 **Fish Plant Management.** Total Quality Management applications to fish processing plants. 3 units (2 lec, 3 lab) Prerequisite: Fish 148

160 **Fish Handling and Preservation Products.** Handling of live fish and low temperature preservation of fish and fishery products. 3 units Prerequisite: Fish 148 and Fish 154

167 **Actual Fishing.** Practical application of the principles and methods of fishing; issues related to fishing; measures to mitigate the impacts of fishing gears. 3 units (1 lec, 6 lab/field) Prerequisite: Fish 137.

171 **Food Engineering Applications in Fisheries.** Principles of food engineering relevant to fish processing operations and their applications. 3 units Prerequisite: Fish 148

180 **General Oceanography.** Relationships of the oceans and the atmosphere, and their combined influence on chemical and biological processes. 3 units Prerequisite: Physics 21 and Chem 11

191 **Philippine Fishing Grounds.** General survey of Philippine fishing grounds, including the status of fisheries resources and their utilization. 2 units

196 **Methods of Research.** 2 units. Prerequisite: Senior Standing.
197 **Practicum.** 3 units
198 **Special Problem.** 3 units Prerequisite: Senior Standing
200 **Undergraduate Thesis.** 3 units Prerequisite: Senior Standing and Consent of Institute Director.

Graduate Courses

Fisheries (Fish)

201 **Advanced Aquaculture.** 5 units (3 lec, 6 lab)
202 **Advances in Fish Health Management.** Pathological effects of infectious and non-infectious diseases in fish, shellfish and crustaceans with emphasis on immunological responses; current diagnostic methods and control strategies in aquaculture, and environmental factors that influence disease transmission. 3 units (2 lec, 3 lab) Prerequisite: Any course in parasitology, microbiology fish diseases or equivalent course/s
203 **Advances in Hatchery Management.** Management techniques, strategies, and recent concepts in hatchery operation. 3 units (2 lec, 3 lab) Prerequisite: Introductory hatchery management or Animal Physiology
203.1 **Seed Production.** Techniques of production and collection of cultivable fish seeds; broodstock development, spawning, hatching and larval rearing. 2 units (1 lec, 3 lab) Prerequisite: COI.
204 **Advanced Aquaculture Engineering.** Infrastructure, facilities, and support structures for the culture of aquatic organisms. 3 units. Prerequisite: Any course in trigonometry and physics
204.1 **Pond Design and Construction.** Site selection, design, construction and maintenance of fishponds. 3 units (1 lec, 6 lab) Prerequisite: Trigonometry or COI
205 **Aquaculture Management.** The integration and rational application of knowledge and various approaches in attaining sustainable production of various aquatic organisms. 4 units (2 lec, 6 lab) Prerequisite: Introductory aquaculture or equivalent course/s
205.1 **Pond Culture Methods and Practice.** Conventional practices and innovations in fish culture. 3 units (1 lec, 6 lab) Prerequisite: Fish 141.1 or equivalent
206 **Pond Productivity.** Physico-chemical and biological properties of pond soil and water; nutrient cycles, pond productivity. 3 units (2 lec, 3 lab) Prerequisite: Fundamentals of Ecology and Limnology.
207.1 **Feeds and Feeding Practices.** Fish feed technology and feeding techniques. 2 units (1 lec, 3 lab) Prerequisite: Fish 141.1 or equivalent.
208 **Fundamentals of Experimental Designs.** Theory and applications of experimental designs with emphasis on aquaculture data analysis. 3 units Prerequisite: Elementary statistics or COI.
209 **Cultivable Species.** Aquatic organisms known in culture, their characteristics and production economics. 2 units. Prerequisite: Ichthyology or equivalent.
210 **Pen and Cage Culture.** Fish culture techniques in pens and cages in lakes, rivers, reservoirs, estuaries and marine coves and bays. 3 units (1 lec, 6 fieldwork) Prerequisite: Fish 141.1 or equivalent.
211 **Recirculating Systems.** Kinds, designs and uses of recirculating water systems in aquaculture. 2 units (1 lec, 3 lab) Prerequisite: Fish 141.1 or equivalent.
212 **Stocking of Open Waters.** Techniques of fish seed dispersal in seas, lakes, rivers, reservoirs, and other bodies of water. 2 units (1 lec, 3 fieldwork) Prerequisite: Fish 141.1 or equivalent.
213 **Shellfish Culture.** Methods and practices in the culture of mollusks, crustaceans and other shellfishes of commercial importance. 2 units (1 lec, 3 fieldwork) Prerequisite: Fish 142.1 or equivalent
214 **Seaweed Culture.** Methods of seaweed culture. 2 units (1 lec, 3 lab) Prerequisite: Fish 141.1 or equivalent
215 **Aquaculture Planning.** Social, economic and political factors affecting aquaculture planning and community development. 2 units (1 lec, 3 lab) Prerequisite: Senior Standing or COI.
216 **Aquaculture Extension.** Objectives, methods and evaluation of technology transfer in aquaculture. 2 units (1 lec, 3 fieldwork) Prerequisite: Senior Standing or COI.
217 **Physiology of Aquatic Animals.** Mechanisms of cell and tissue adaptation to the aquatic environment. 3 units. Prerequisite: Any undergraduate physiology course.

218 **Advanced Aquatic Ecology.** Key ecological concepts and insights pertaining to the structure and function of aquatic systems; new developments and contemporary issues in aquatic ecology. 3 units Prerequisite: Basic ecology or equivalent course/s

219 **Advanced Fish Genetics.** Application of principles of genetics to aquaculture. 3 units (2 lec, 3 lab) Prerequisite: Elementary genetics.

220 **Special Topics.** Supervised study in areas/aspects of fisheries of special interest to graduate students. 3 units. Prerequisite: Consent of student's program adviser.

221 **Fisheries Ecology.** Parameters defining the marine environment, their influences and interactions in the ecosystem; organic production, food webs, food cycles and pollution. 3 units (2 lec, 3 lab) Prerequisite: Fish 132 or equivalent.

222 **Planktology.** Qualitative and quantitative analysis and distribution of plankton including fish eggs and larvae. 3 units (2 lec, 3 lab) Prerequisites: Fish 102 and Fish 111 or equivalent.

223 **Advanced Oceanography.** Advanced studies in chemical and physical properties of seawater. Readings in marine meteorology. 3 units (2 lec, 3 lab) Prerequisites: Fish 108 and Fish 181 or equivalent.

224 **Advanced Biostatistics.** Statistical analysis of biological data and experimental designs. 3 units. Prerequisite: Fish 122 or equivalent.

225 **Fish Population Dynamics.** The dynamics of exploited and related theoretical fish population; application of mathematical models to stock assessment. 3 units. Prerequisite: Fish 224.

226 **Marine Zoogeography.** A survey of marine zoogeographic regions; in-depth analysis of the distribution of the representative groups of marine animals. 3 units Prerequisite: Advanced Oceanography and Fisheries Ecology

227 **Advanced Fishing Technology.** Advanced techniques in fishing gear design and construction; electro-acoustics and its application for detection and estimation of fish abundance. 3 units (2 lec, 3 lab) Prerequisite: Physics 21 and 21.1; Fish 137 or equivalent

228 **Shipboard Training.** A minimum of 2 weeks of practical training on-board commercial fishing vessel. 0 credit Prerequisite: Consent of Adviser.

229 **Ocean Management.** An overview of the complemental and conflicting uses of the ocean space and resources. 3 units. Prerequisite: COI.

236 **Fish Biochemistry.** Changes in fish lipids, proteins, (especially enzymes), carbohydrates and other fish cell components, post mortem, during processing and assimilation. 2 units (1 lec, 3 lab) Prerequisite: Fish 170 or equivalent.

237 **Fish Microbiology.** Significant micro-organisms in tropical fishes as related to fish and handling and processing. 3 units (2 lec, 3 lab) Prerequisite: Fish 154 or equivalent.

238 **Instrumental Analysis of Fish and Fishery Products.** Composition and quality assessment of fish and fishery products with emphasis on instrumental methods. 2 units (1 lec, 3 lab) Prerequisite: Fish 155 or COI.

239 **Low Temperature Preservation of Fish.** Application of principles of low temperature preservation to specific fisheries commodities. 3 units (2 lec, 3 lab) Prerequisite: Fish 160 or equivalent.

239.1 **Post Harvest Technology.** Techniques of handling and storage, quality control and transport of fresh fishes and other fishery products. 3 units (2 lec, 3 lab) Prerequisite: Microbiology or COI.

240 **Fish Curing and Dehydration.** Unit operations and processes involved in fish curing and dehydration. 3 units (2 lec, 3 lab) Prerequisite: Fish 151 or Consent of Instructor

241 **Thermal Processing of Fish.** Thermal process calculation for fish and fishery products with reference to microorganisms and nutrient retention. 2 units (1 lec, 3 lab) Prerequisite: Fish 152 or COI.

242 **Economics of Fish Processing and Marketing.** Economic analysis of the fish processing sector and marketing techniques. 3 units. Prerequisite: Econ 11 or equivalent.

243 **Fish Processing Standards and Regulations.** Philippine and international laws and practices affecting fish processing in the Philippines; export and import requirements of selected countries. 1 unit.

244 **Seaweeds and Other Fishery Products.** Utilization of seaweeds and other aquatic products. 2 units (1 lec, 3 lab) Prerequisite: Fish 153 or Consent of the Instructor.

245 **Fish Toxins.** Chemical and biological toxins of public health significance. 2 units (1 lec, 3 lab) Prerequisite: Fish 154 or equivalent.

246 **Sensory Evaluation of Fishery Products.** Methods for sensory evaluation of fish and fishery products including statistical treatment of data. 2 units (1 lec, 3 lab) Prerequisite: Fish 122 or equivalent.

247 **Packaging of Fish and Fishery Products.** Packaging of fish and fishery products; assessment of container properties and product shelf-life. 2 units (1 lec, 3 lab) Prerequisites: Fish 154 and Fish 155 or their equivalent.

250 **Natural Food for Aquaculture.** Methods and techniques for the culture and mass production of organisms that serve as food for aquaculture species. 3 units (2 lec, 3 lab) Prerequisites: General Botany and Aquatic Flora (undergraduate courses)

252 **Aquaranching.** Enhancement of existing fish populations and release of fish stocks in open waters like lakes, rivers and coastal waters. 3 units (2 lec, 3 lab) Prerequisite: Advanced Aquaculture*, Fish Population Dynamics**

254 **Histology of Aquatic Organisms.** Histological techniques in the study of the structure and function of tissues of representative aquatic organisms with special emphasis on aquaculture species. 3 units (2 lec, 3 lab) Prerequisite: Histology*

256 **Aquaculture Economics.** Macro- and micro- economics of aquaculture. 3 units Prerequisite: Introductory Economics*

258 **Marine Biotechnology.** Introduction to the principles and techniques of biotechnology as applied to fishery science, with emphasis on aquaculture. 3 units (2 lec, 3 lab) Prerequisite: Biochemistry* and Genetics*

290 **Special Problem.** 3 units

298 **Seminar.** 1 unit (may be repeated for another two units)

299 **Graduate Seminar.** 1 unit.

300 **Graduate Thesis.** 6 units. Prerequisite: 24-26 units course credit without INC; with GWA of 2.0 or better.

301 **Fish Energetics.** Concepts of energy partitioning in fishes in relation to exogenous factors. 3 units (2 lec, 3 lab) Prerequisite: Physiology of Aquatic Animals, Advanced Aquatics Ecological Concepts**

302 **Biochemical Evaluation in Fish Nutrition.** The use of biochemical information for improved assessment of nutritional requirement of aquatic organisms. 3 units (2 lec, 3 lab) Prerequisite: Basic Biochemistry and Fish Nutrition*

303 **Contemporary Issues in Aquatic Ecology.** Current issues pertaining to the aquatic environment and associated socio-ecological systems; the control and mitigation of ecological disturbances. 3 units. Prerequisite: Ecology course

304 **Hydrology in Aquaculture.** Water, its properties, distribution and circulation and their applications to aquaculture. 3 units (2 lec, 3 lab) Prerequisite: Limnology*

305 **Dynamics of Pond Ecosystems.** Processes and patterns related to energy, nutrient flow and productivity of pond ecosystems. 3 units (2 lec, 3 lab) Prerequisite: Aquatic Ecology*

306 **Waste Management in Aquaculture.** Techniques and processes in the utilization and disposal of wastes in aquaculture. 3 units (2 lec, 3 lab) Prerequisite: Aquaculture Management**

307 **Advanced Physiology of Aquatic Animals.** Mechanisms of physiological processes, strategies and functional adaptations of aquatic animals. 3 units (2 lec, 3 lab) Prerequisite: Physiology of Aquatic Animals**

308 **Fish Pathology.** Pathology of cells and tissues in aquaculture species caused by infectious and non-infectious agents of diseases. 3 units (2 lec, 3 lab) Prerequisite: Histology of Aquatic Organisms*

309 **Stochastic Modeling for Fisheries.** Topics in stochastic processes with application to fisheries studies. 3 units. Prerequisite: Biostatistics**

310 **Coastal Resource Management.** Biological and socio-economic concepts in developing the coastal zone for aquaculture purposes and management of the coastal resources. 3 units. Prerequisite: Ecology* or equivalent

311 **Fisheries Resource Management.** Key concepts and topics in natural resources and environmental management related to communities, fisheries, coasts, water and wildlife, and how they influence decision making. 3 units. Prerequisite: COI

312 **Special Topics in Fisheries.** 3 units. Prerequisite: Consent of the Instructor.

313 **Quality Management in Fisheries.** Quality management systems; approaches for planning and managing for quality within any fisheries organizations; and analysis of quality problems in fisheries organizations. 3 units. Prerequisite: Math 101 or equivalent course.

314 **Ocean Dynamics.** Characteristics of the ocean ecosystem and their interactions; approaches to modeling of the ocean ecosystem. 3 units. Prerequisite: Fish 180 or equivalent course

315 **Ocean Resources Utilization.** Approaches to the sustainable use of ocean resources including coastal space. 3 units. Prerequisite: Fish 191 or equivalent course

316 **Fish Behavioral Ecology.** Behavioral adaptations and responses of fishes and their applications to fish capture and marine ranching. 3 units. Prerequisite: Fish 102 or equivalent course

317 **Development in Fishing Technology.** Impacts of fishing on aquatic resources and habitats; issues on fishery resources exploitation; and designs of appropriate fishing gears. 3 units. Prerequisite: Fish 137 or equivalent course

318 **Fish Reproductive Biology.** Effects of environmental stressors and stimuli to fish reproduction. 3 units. Prerequisite: Fish 109 or equivalent course.

319 **Aquatic Toxicology.** Nature, properties, effects and detection of chemical pollutants in aquatic environments and the assessment of their risks to fishery resources. 3 units. Prerequisite: Bio 10, Chem 11 and ecology course or their equivalents.

320 M**arine Trophic Relationships.** Study and Modeling of trophic interactions and the transfer of energy in the food web of marine populations. 3 units. Prerequisite:, 3 units. Prerequisite: Fish 133 or equivalent course

321 **Bioprocessing in Fisheries.** Biochemical and microbial processes, separation technologies, their stoichiometry and optimization. 3 units. Prerequisite: Fish 236 and 237 or equivalent courses.

322 **Biocommodity Engineering.** Applications of biotechnology and process engineering to production of commodity products from aquatic resources. 3 units (1 lec, 6 lab). Prerequisite: Fish 236 and 237 or equivalent courses.

323 **Advances in Seafood Post-Harvet Technologies.** Developments in selected post-harvest fisheries technologies. 3 units. Prerequisite: Fish 148 or equivalent course.

324 **Waste Management in Fisheries Post-Harvest.** Concepts and methods for characterization, treatment, utilization and disposal of wastes generated from fisheries post-harvest; impact analysis. 3 units. Prerequisite: Fish 236 and 237 or equivalent courses.

398 **Seminar.** 1 unit. Prerequisite: Consent of the Instructor.

400 **Dissertation.** 12 units.

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*Undergraduate courses

**Graduate courses

Marine Affairs (MA)

202 **Contemporary Issues in Marine Affairs.** Issues affecting the sustainable development of the coastal and marine environment. 3 units.

204 **Marine and Coastal Ecology.** Physical, chemical and biological characteristics of the marine environment with emphasis on the coastal areas. 3 units.

206 **Development Planning and Management.** Management principles/functions as well as principles, concepts and methods of development planning and management in the marine and coastal environment. 3 units.

208 **Coastal Resources Assessment and Management.** Resources in the coastal areas, their utilization, assessment and management. 3 units

210 **Marine Law and Policy.** Policies and legislations related to the use of marine and coastal resources. 3 units

212 **Law Enforcement and Conflict Management.** Status, approaches and procedures of law enforcement and accompanying conflict management issues in the marine and coastal areas. 3 units.

214 **Economic Valuation of Coastal and Marine Resources.** Economic principles with emphasis on economic valuation for optimally utilizing and managing coastal and marine resources. 3 units.

216 **Development Communication Management.** Dimensions of strategies and approaches, information and communication management skills including crisis management handling. 3 units.

218 **Community-Based** communication, its **Coastal Resources Management.** Management of resources in the coastal areas by the community, especially the stakeholders and resource users, with emphasis on community organizing and mobilization. 3 units.

220 **Ports Management.** Description of ports and tools for port management and port operation. 3 units.

222 **Marine Transport Systems.** Different modes of marine transport, nature of ship design and production, sea routes, vessel management and ship technology. 3 units.

224 **Sustainable Tourism.** Concepts and principles in the development of sustainable tourism. 3 units.

226 **Principled Ocean and Coastal Governance** Sustainable development, concepts and principles integrated into good governance, and their application in ocean and coastal areas. 3 units

228 **Gender and Sustainable Development** Gender relations as significant elements of development frameworks and practice, particularly for sustainable development in coastal settings in the Philippines. 3 units

297 **Special Topics.** 3 units .

298 **Special Problem.** A graduate work that will apply the knowledge and skills learned by the students of the program. 3 units.

Oceanography (Ocean)

210 **Advanced Physical Oceanography.** Physical properties of seawater, conservation laws, forces and motion, equations of motion, ocean currents, wave motion, tidal motion, introduction to ocean models. 3 units. Prerequisite: COI

220 **Advanced Chemical Oceanography.** Properties of water and chemical processes in the marine environment especially biogeochemical cycles. 3 units. Prerequisite: COI

230 **Advanced Geological Oceanography.** The structure, origin, and history of the earth's oceans including geomorphology, geophysics, geochemistry, sedimentology, petrology and paleontology. 3 units. Prerequisite: COI

240 **Advanced Biological Oceanography.** Biological processes and biogeochemical cycles in the oceans and how these relate to the oceanic environment. 3 units. Prerequisite: COI

241 **Applied Marine Microbiology.** Marine microorganisms, microbiological processes and nutrient cycles in the ocean. 3 units (2 lec, 3 lab) Prerequisite: Ocean 240

243 **Marine Benthos and Benthic Communities.** The taxonomy, distribution and abundance of marine organisms in different benthic communities. It includes community analysis; energy transfer and nutrient recycling; its role in the field of fisheries and biodiversity conservation. 3 units (2 lec, 3 lab) Prerequisite: Ocean 240.

244 **Advance Ichthyology.** Anatomy, physiology and natural history of fishes. 3 units (2 lec, 3 lab) Prerequisite: Ocean 240

245 **Biology of Exploited Invertebrates.** The subject deals with the study of autoecology of the shrimps, crabs, lobsters, squids and mollusks. It includes the taxonomy, distribution, feeding ecology, reproductive characteristics and population biology. It focuses on the biological aspects that are important considerations in the proper management of these renewable biological resources. 3 units (2 lec, 3 lab) Prerequisite: Ocean 240

246 **Applied Marine Botany.** Morphology and physiology, reproduction and life histories, ecology, and taxonomy of phytoplankton, seaweeds and higher marine plants. Culture techniques and use in biotechnology of microalgae and macroalgae. 3 units (2 lec, 3 lab) Prerequisite: Ocean 240.

271 **Marine Law and Policy.** General overview of national and international regulations with emphasis on the Law of the Sea. Marine policy formulation. Case studies. 3 units (2 lec, 3 lab) Prerequisite: Ocean 210, 220, 230 and 240

272 **Approaches in Ocean Resource Management.** History and current approaches to ocean resource management. Top-down and bottom-up management. 3 units. Prerequisites: Ocean 210, 220, 230 and 240

273 **Coastal Zone Development and Management.** Resources of the coastal zone, their multiple use and development. Integral strategies to coastal zone management, specific management approaches, information requirements and case studies for specific problems. 3 units (2 lec, 3 lab) Prerequisite: Ocean 210, 220, 230 and 240

274 **Monitoring, Control and Surveillance.** Information system, licensing and law enforcement applied to fishing and other extractive activities in the ocean and coastal waters. 3 units (2 lec, 3 lab) Prerequisite: Ocean 210, 220, 230, and 240

275 **Disaster Mitigation and Control.** Physical, chemical and biological approaches towards mitigating and controlling various forms of maritime disasters including impacts of pollution. 3 units. Prerequisite: Ocean 210, 220, 230, and 240

276 **Dynamics and Management Of Exploited Populations.** Dynamics of exploited marine populations and application of yield and production models to management. 3 units (2 lec, 3 lab) Prerequisite: Ocean 210, 220, 230, 240, Undergrad Calculus and Statistics

277 **Utilization and Uses of Non-Living Marine Resources.** Ocean and sea-bed mining. Extractions from sea water. Issues and studies of non-living resource management. 3 units (2 lec, 3 lab) Prerequisite: Ocean 210, 220, 230, and 240

279 **Information Systems and Computer Applications in Ocean Management.** Application of computers in ocean resources management, acoustics, GIS, remoter sensing and automated monitoring in information systems interpretation for ocean management and policy studies. 3 units (1 lec, 6 lab) Prerequisite: Ocean 210, 220, 230, and 240

298 **Graduate Seminar.** 1 unit. Prerequisite: Ocean 210, 220, 230 and 240.

299 **Special Topics.** Study of recent advances in the various fields of ocean sciences including but not limited to, marine biotechnology, ocean instrumentation, ocean energy, fishing gear technology, applications of remote sensing in ocean sciences, genetics, mariculture technology and quantitative sciences. 1 unit. Prerequisite: 210,220,230, and 240

300 **Master Thesis.** 6 units Prerequisite: Completion of at least 24 units

BACHELOR OF SCIENCE IN FISHERIES

First Year First Semester

Course No.	Course Title	Units
GE AH 1*		3
GE SSP 1*		3
GE MST1		3
Math 11	College Algebra	3
Bio 10	General Biology	5
P.E. 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		17

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE SSP 2*		3
GE MST 2		3
Math 14	Plane Trigonometry	3
Chem11	General and Inorganic Chemistry	5
P.E. 2	Swimming	(2)
NSTP		(3)
		17

Second Year First Semester

Course No.	Course Title	Units
GE AH 3*		3
GE SSP 3*		3
Chem 23	Inorganic Analytical Chem	5
Fish 101	Aquatic Fauna and Flora	5
Fish137	Fishing Technology	3
P.E.		(2)
		19

Second Year Second Semester

Course No.	Course Title	Units
GE AH 4*		3
Math 101	Elementary Statistics	3
Physics 21	Intro to Physics	4
Fish102	Ichthyology	4
Fish 125	Aquaculture Technologies	5
P.E.		(2)
		19

Third Year First Semester

Course No.	Course Title	Units
GE SSP 4*		3
Math 100	Intro to Calculus	4
Chem 31	Elem. Org. Chemistry, Lect	3
Chem 31.1	Elem. Org. Chemistry, Lab	2
Fish 148	Fish. Post Harvest Technologies	5
Fish 154	Fisheries Microbiology	3
		20

Third Year Second Semester

Course No.	Course Title	Units
GE AH 5*		3
Chem 40	Elementary Biochemistry	3
Fish 133	Aquatic Ecosystems	5
Fish 140	Fish Stock Assessment	3
Elective		3
Elective		2-4
		19-21

SUMMER

Course No.	Course Title	Units
FISH 197*	PRACTICUM	3

Fourth Year First Semester

Course No.	Course Title	Units
GE MST 3		3
P.I. 100	The Life and Works of Jose Rizal	3
Fish 109	Physiology of Aqua Organisms	3
Fish 147	Fish Genetics	3
Fish 198[1]	Special Problem	3
Fish 200[2]	Undergraduate Thesis	
Elective		3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
GE SSP 5*		3
Fish 118	Fish. Policies and Institutions	2
Fish 124	Fisheries Extension	2
Fish 150	Fisheries Management	3
Fish 104	Intro to Fisheries Entrepreneurship	3
Elective		2-3
		15-16

TOTAL NO. OF UNITS 144-150

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

[1] Non-thesis option: Fish 197 and Fish 198 only
[2] Thesis option: Fish 200 only

MASTER OF AQUACULTURE

Summer

Course No.	Course Title	Units
Fish 141.1	Principles of Aquaculture	(3)
Fish 203.1	Seed Production	2
Fish 204.1	Pond Design and Construction	3
Fish 209	Cultivable Species	2
		7

First Semester

Course No.	Course Title	Units
Fish 202	Advances in Fish Health Management	3
Fish 205.1	Pond Culture Methods and Practice	3
Fish 214	Seaweed Culture	2
Fish 210	Pen and Cage Culture	3
Elective		2
		13

Second Semester

Course No.	Course Title	Units
Fish 213	Shellfish Culture	2
Fish 207.1	Feeds and Feeding Practices	2
Fish 216	Aquaculture Extension	2
Fish 239.1	Post Harvest Technology	3
Elective		2
		11

TOTAL NUMBER OF UNITS **31 units**

MASTER OF MARINE AFFAIRS

First Year First Trimester

Course No.	Course Title	Units
MA 202	Contemporary Issues in Marine Affairs	3
MA 204	Marine and Coastal Ecology	3
MA 206	Development Planning and Management	3
		9

First Year Second Trimester

Course No.	Course Title	Units
MA 208	Coastal Resources Assessment and Management	3
MA 210	Marine Law and Policy	3
MA 218	Community-Based Coastal Resources Management	3
		9

First Year Third Trimester

Course No.	Course Title	Units
Elective		3
Elective		3
Elective		3
		9

Second Year First Trimester

Course No.	Course Title	Units
MA 298	Special Problem	3

TOTAL NUMBER OF UNITS **30 units**

MASTER OF SCIENCE IN FISHERIES
MAJOR IN AQUACULTURE

First Year First Semester

Course No.	Course Title	Units
Fish 205	Aquaculture Management	4
Fish 218	Advanced Aquatic Ecology	3
Fish 219	Advanced Fish Genetics	3
Elective		3
		13

First Year Second Semester

Course No.	Course Title	Units
Fish 202	Advances in Fish Health Management	3
Fish 208	Fundamentals of Experimental Designs	3
Elective		3
Elective		3
		12

Second Year First Semester

Course No.	Course Title	Units
Fish 300	Graduate Thesis	6

TOTAL NUMBER OF UNITS **31 units**

MASTER OF SCIENCE IN FISHERIES
MAJOR IN FISHERIES BIOLOGY

First Year First Semester

Course No.	Course Title	Units
Fish 223	Advanced Oceanography	3
Fish 224	Advanced Biostatistics	3
Cognate		3
Cognate		3
		12

First Year Second Semester

Course No.	Course Title	Units
Fish 221	Fisheries Ecology	3
Fish 225	Fish Population Dynamics	3
Fish 290	Special Problem	3
Cognate		3
		12

Second Year First Semester

Course No.	Course Title	Units
Fish 228	Shipboard Training	0
Fish 298	Seminar	1
Fish 300	Graduate Thesis	6
		7

TOTAL NUMBER OF UNITS **31 units**

MASTER OF SCIENCE IN FISHERIES
MAJOR IN FISH PROCESSING TECHNOLOGY

First Year First Semester

Course No.	Course Title	Units
Fish 236	Fish Biochemistry	2
Fish 237	Fish Microbiology	3
Fish 238	Instrumental Analysis of Fish and Fishery Products	2
Elective		2
		9

First Year Second Semester

Course No.	Course Title	Units
Fish 239	Low Temperature Preservation of Fish	3
Fish 240	Fish Curing and Dehydration	3
Elective		2
		8

Second Year First Semester

Course No.	Course Title	Units
Fish 241	Thermal Processing of Fish	2
Fish 290	Special Problem	3
Elective		1-3
		6-8

Second Year Second Semester

Course No.	Course Title	Units
Fish 300	Graduate Thesis	6
Fish 298	Seminar	1
		7

TOTAL NUMBER OF UNITS **30-32 units**

MASTER OF SCIENCE IN OCEAN SCIENCES

First Year First Semester

Course No.	Course Title	Units
Ocean 210	Advanced Physical Oceanography	3
Ocean 220	Advanced Chemical Oceanography	3
Ocean 230	Advanced Geological Oceanography	3
Ocean 240	Advanced Biological Oceanography	3
		12

First Year Second Semester

Course No.	Course Title	Units
Major Course 1		3
Major Course 2		3
Major Course 3		3
Cognate		3
		12

Second Year First Semester

Course No.	Course Title	Units
Ocean 298	Graduate Seminar	1
Ocean 299	Special Topics	1
Ocean 300	Master Thesis	6
		8

TOTAL NUMBER OF UNITS **32 units**

Ph D IN FISHERIES

Full-Time

First Year First Semester

Course No.	Course Title	Units
Fish 303	Contemporary Issues in Aquatic Ecology	3
Fish 311	Fisheries Resource Management	3
Fish 313	Quality Management in Fisheries	3
Elective		2-3
		11-12

First Year Second Semester

Course No.	Course Title	Units
Elective		2-4
Elective		2-3
Elective		3
Elective		3
		10-12

Second Year First Semester

Course No.	Course Title	Units
Elective		3
Elective		3
Elective *		2* / 3*
		6/8*/9*

Second Year Second Semester

Course No.	Course Title	Units
Fish 400	Dissertation	12

Third Year First Semester

Residency

Third Year Second Semester

Residency

TOTAL NUMBER OF UNITS **42-44 units**

*Only for students needing an additional subject to complete the required minimum 21 units of electives.

PH D IN FISHERIES

Part-Time

First Year First Semester

Course No.	Course Title	Units
Fish 303	Contemporary Issues in Aquatic Ecology	3
Fish 313	Quality Management in Fisheries	3
		6

First Year Second Semester

Course No.	Course Title	Units
Elective		2-4
Elective		2-3
		4-7

Second Year First Semester

Course No.	Course Title	Units
Fish 311	Fisheries Resource Management	3
Elective		2-3
		5-6

Second Year Second Semester

Course No.	Course Title	Units
Elective		3
Elective		3
		6

Third Year First Semester

Course No.	Course Title	Units
Elective		3
Elective		3
		6

Third Year Second Semester

Course No.	Course Title	Units
Elective*		2*/3*

Fourth Year First Semester

Course No.	Course Title	Units
Fish 400	Dissertation	12

Fourth Year Second Semester

Residency

Fifth Year First Semester

Residency

Fifth Year Second Semester

Residency

TOTAL NUMBER OF UNITS **42-44 units**

*Only for students needing an additional subject to complete the required minimum 21 units of electives.

COLLEGE OF MANAGEMENT

In response to a profound need for quality management education in Visayas, the Board of Regents of the University of the Philippines System established the School of Development Management (SDM) in the University of the Philippines in the Visayas (UPV) on December 22, 1981. SDM absorbed and expanded the programs of the former Division of Management of the UPV College of Arts and Sciences. After ten successful years of operation, the SDM was elevated into a college and was renamed as the College of Management by the Board of Regents during its 1044th meeting on October 22, 1991.

VISION

The College of Management as a center of excellence in management education and training.

MISSION

The College of Management is committed to develop students and clients by designing and implementing academic and training programs in pursuit of UPV's mandate through instruction, research and extension towards effective governance and utilization of resources for sustainable development.

Academic Programs

Undergraduate Programs

1. Bachelor of Science in Accountancy
2. Bachelor of Science in Business Administration (Marketing)
3. Bachelor of Science in Management

Post-baccalaureate Program

Diploma in Urban and Regional Planning

Graduate Program

Master of Management (Business Management)
Master of Management (Public Management)

CM COURSES

DEPARTMENT of ACCOUNTING

Undergraduate Courses

Accounting (Acctg)

1 **Fundamentals of Management Accounting.** Accounting concepts and principles applied to service, merchandising, and manufacturing operations; partnerships and corporations; the analysis, interpretation and uses of accounting data for management. 3 units. Prerequisite: Sophomore Standing.

Business Administration (BA)

99.1 **Fundamental Accounting Theory and Practice I.** Fundamental accounting theory and terminology with reference to accounting practice and management's use of accounting data. 3 units. Prerequisite: Sophomore Standing.

99.2 **Fundamental Accounting Theory and Practice II.** Continuation of Fundamental Accounting Theory and Practice I. 3 units. Prerequisite: BA 99.1

101 **Introduction to Business Management** Principles and techniques of business organization and management. An introduction to case problem solving. 3 units

102 **Philippine Business Environment** A survey of sociological, technological, legal, psychological, economic and other external factors which influence business decision making in the Philippines. 3 units Prerequisite: BA 101 or Mgt 101

104 **Organizational Behavior** The concepts and principles of behavior in business organizations. 3 units Prerequisite: BA 101 or Consent of Dept. Chair

114.1 **Accounting Theory and Practice I.** Accounting theory and the problems in the application of generally accepted accounting principles concerning asset accounts and the income statement. 6 units. Prerequisites: BA 99.2

114.2 **Accounting Theory and Practice II.** Continuation of Fundamental Accounting Theory and Practice I, (to include liabilities, owner's equity and special topics). 6 units. Prerequisite: BA 114.1

115 **Management Accounting.** Uses of accounting information for managerial planning and control. 3 units. Prerequisites: BA 99.1 and BA 99.2.

116 **Cost Accounting.** Principles of cost determination and control; job-order cost, process cost, estimated cost, and standard cost systems; budgetary control; analyses and uses of cost data. 6 units Prerequisite: BA 114 or Consent of Dept. Chair

117 **Managerial Cost Accounting and Control.** Specialized topics in cost accounting for planning and control. 3 units Prerequisite: BA 116 or Consent of Dept. Chair

118.1 **Advanced Accounting I** Application of advanced accounting concepts to specific business activities such as partnerships, corporate liquidation, reorganization for financially distressed corporations, home office and branch operations, sales agency accounting, joint ventures and other special topics such as installment sales and foreign currency transactions. 6 units Prerequisite: BA 114.2

118.2 **Advanced Accounting II** Application of advanced accounting concepts to specific business activities such as combined corporate entities and consolidations and other special topics such as non-profit organizations, insurance contracts and accounting for build-operate-transfer and its variants. 6 units Prerequisite: BA 118.1

119 **Special Topics in Accounting Theory.** A historical study of accounting theory and a critical evaluation of recent developments and trends in accounting thought. 3 units. Prerequisite: Graduating

120.1 **Audit Theory.** Theories involved in the independent examination of accounts, standards and procedures; audit programs; preparation of audit reports and internal audit. This course introduces the basic concepts underlying audit and other assurance services. 3 units. Prerequisite: BA 116, BA 118.1

120.2 **Audit Practice**. Application of theories involved in the independent examination of accounts, standards and procedures; audit programs and working papers; preparation of audit reports and internal audit. 6 units Prerequisite: BA 120.1, BA 118.2, and Senior Standing

122 **Government Accounting and Auditing: Theory and Practice.** This course will apply government accounting and auditing theory to various government subdivisions like the barangay, the local and the national government and their specific activities. 3 units. Prerequisite: BA 114.2

125 **Management Information Systems.** Information dimensions of decision-making process, identification, evaluation, modification and integration of information flows into management information systems. 3 units. Prerequisite: Senior Standing (106 units completed).

127 **Tax Accounting I.** The application of the income tax law and regulations in the determination of the tax liabilities of individuals, estates and trusts, partnerships and corporations. 3 units Prerequisite: BA 114.2

128 **Tax Accounting II.** The application of laws and regulations governing estate inheritance and gift, business, and miscellaneous taxes in the determination of tax liabilities. 3 units. Prerequisite: BA 114.1, BA 116, and BA 127

129 **Management Services.** The management of consulting firm; preparation of feasibility studies; marketing, technical and financial aspects; project evaluation. 3 units. Prerequisite: BA 117, BA 142, BA 187, Graduating

141 **Business Finance I.** Introduction to the principles governing financial management of business enterprises with emphasis on short-range planning and management of working capital. 3 units. Prerequisite: BA 114.2 or BA 115

142 **Business Finance II.** Long-range planning and management of the long-term financial position of a business organization; recapitalization and liquidation. 3 units. Prerequisite: BA 141

145 **Investment Management.** Investment principles and practices, with special emphasis on security analysis and portfolio management in the Philippine context. 3 units.

145 **Investments.** Principles and practices with special emphasis on the evaluation of project studies, security analysis and the establishment of standards for the selection of industry, issue and security. 3 units. Prerequisite: Econ 121

161 **Law on Business Transactions and Transportation.** Obligations, contracts, sales, bailments, quasi-delicts, damages, law on common carriers, Code of Commerce on Transportation, Carriage of Goods by Sea Act, and all other related laws. 3 units.

162 **Law on Business Organizations and Labor.** Single proprietorships, partnerships, corporations, cooperatives, Securities Act, laws on insolvency, civil code provision on the order of preference and concurrence of credits; labor code. 3 units. Prerequisite: BA 161 or Consent of Dept Chair

164 **Negotiable Instruments and Insurance.** Negotiable instruments, Warehouse Receipts Law, Document of Title under the Civil Code and Insurance Law, all banking laws and related special laws. 3 units. Prerequisite: BA 160.1 and 160.2 or their equivalents

167 **Sales and Bailments and other Special Laws.** Sales, Bulk Sales Law, Pledge, Real Mortgage, Chattel mortgage, Loan, Usury, Deposit, Guaranty, Agency and all other special laws. 3 units. Prerequisite: BA 160.1 and 160.2; for non-accounting majors only

170 **Introduction to Marketing Management.** The core concepts of Marketing Management including analysis of marketing opportunities, needs, value and markets. Emphasis will be on environmental, consumer and competitor analyses, marketing information systems and market segmentation as applied to different marketing situations. 3 units. Prerequisite: Junior Standing.

171 **Advanced Marketing Management.** Developing and managing marketing strategies and programs based on analyses of marketing situations. Emphasis will be placed on product differentiation and positioning, the marketing mix and marketing control measures. 3 units. Prerequisite: BA 170 or Mgt 170

172 **Integrated Marketing Communications.** The contemporary elements of the marketing communications mix covering advertising, sales promotion, public-oriented promotions, public relations, exhibitions and trade shows. 6 units. Prerequisite: BA 171

173 **Marketing Logistics.** The principles and practice of planning, implementing and controlling the flow of goods and services from point of origin to point of use adopting the total cost and service concepts. 3 units. Prerequisite: BA 171.

174 **Marketing Research.** A survey of the techniques used in marketing research. Selected problems in the analysis of sales records, sales forecasting, estimating sales potentials, sampling consumer demand, determining the factors which influence demand for specific goods. 3 units. Prerequisite: BA 170 and BA 171.

175 **International Marketing.** Problems and policies with emphasis on foreign marketing analysis and export feasibilities, foreign trade promotion, export-import procedures and requirements, all considered from the Philippine perspective. 3 units. Prerequisites: Econ. 101 and BA 171

176 **Sales Management.** Problems and policies in the management of the sales force of both manufacturing and commercial enterprises. 3 units. Prerequisite: BA 170

178 **Seminar in Marketing Management.** The coverage varies from time to time depending on relevance of topics and interest of seminar participants. 3 units. Prerequisite: BA 171

179 **Law and Marketing.** Laws governing marketing operations and transactions applicable in the local and export markets. 3 units. Prerequisite: Junior Standing.

181 **Management Science** The use of management science /operations research (MS/OS) in analysis of business problems concerning production, marketing, personnel, and finance. 3 units Prerequisite: Math 100 and 101

183.1 **Introduction to Information Technology.** Basic computer concepts and principles; historical evolution of hardware and software; knowledge and skill in word processing, spreadsheet, presentation software and internet tools. 3 units.

183.2 **Basic Programming and Database Management.** Program logic, flowcharting and basic programming; preparation and processing of database and building different types of databases that are used in business. 3 units Prerequisite: BA 183.1

184.1 **Computer-based Accounting Systems.** Design and installation of manual and computerized accounting system and computerized bookkeeping. 3 units Prerequisite: BA 114.2, BA 117, BA 183.2

184.2 **Audit of Computer-based Accounting Systems.** The use of computers on the system of internal control and on the auditor's study and evaluation of internal control. 3 units Prerequisite: BA 184.1 and BA 120.2

187 **Operations Management.**
Principles, procedures and techniques in the design, operation, and improvement of production systems. 3 units Prerequisite: BA 101 and BA 181

190 **Strategic Management.**
Integration of the different management functional areas discussed and taken up from the point of view of general and top management with focus on formulation, execution, control and review of business strategies. 3 units. Prerequisite: BA 142, BA 170, BA 187, Graduating

196 **Public Accounting Practice** Integrated audit case. 3 units Prerequisite: BA 120.1, BA 128

199 **Business Research** 3 to 6 units Prerequisite: Graduating

Graduate Courses

Tax Management (TM)

261 **Government Taxation and Administration I.** Review and application of the basic principles of taxation, income and transfer taxes, its laws and regulations, tax administration covering tax assessment and tax collection, issues and problems. 3 units. Prerequisite: PM 231

262 **Government Taxation and Administration II.** Review and application of the basic principles of business and other national taxes, local government taxes, its laws, regulations and application, issues and concerns. 3 units. Prerequisite: TM 261

298 **Seminar in Tax Management.** An integrative course focused on special problems and issues in local and international taxation. 3 units.

DEPARTMENT of MANAGEMENT

Undergraduate Courses

Cooperatives Management (CM)

102 **Introduction to Cooperatives.** Concepts, scope, principles, and laws of cooperatives. 3 units.

196 Practicum. 3 units

197 **Special Topics in Cooperatives.** Issues and problems in cooperative organization, management and development. 3 units. Prerequisite: CM 151/Senior Standing

Information Technology (IT)

102 **Fundamentals of Programming.** Expansion and development of materials introduced in IT 101; systematic program development; data structure and file processing; graphical user interface concepts; database system concepts. 3 units (2 lec, 3 lab). Prerequisite: IT 101.

127 **Database Management System.** Database management system; data definition and manipulation language; principal database systems and query languages. 3 units (2 lec, 3 lab). Prerequisite: IT 101.

152 **Management Information System.** Role of MIS in decision-making process of management; includes identification, evaluation, modification and integration of information flows into MIS. 3 units (2 lec, 3 lab). Prerequisite: IT 102.

197 **Special Topics in Information Technology.** 3 units (2 lec, 3 lab). Prerequisite: IT 102, Senior Standing.

Management (Mgt)

101 **Introduction to Management.** A survey of management as a field of study; the different schools of thought, and the major concepts and tools in the field. 3 units Prerequisite: Junior Standing

102 **Environment of Management.** Interrelationships between and among the micro and macro environment of the managers of the firm, its management, and that of the business enterprises in the Philippines. 3 units. Prerequisite: Mgt 101.

104 **Organizational Behavior.** Theories and concepts on human behavior in organizations, individual, small group, inter-group, and supervisory behavior. 3 units.

115 **Management Accounting.** Uses of accounting information for managerial planning and control. 3 units. Prerequisite: BA 99.2 and Econ 11.

121 **Human Resource Management.** Factors and objectives which shape personnel policies of employers and practices which implement these policies. 3 units. Prerequisite: Mgt 101 or BA 101

141 **Financial Management I.** Financial management principles for short and long range planning. 3 units. Prerequisite: Mgt 101 and 115.

142 **Financial Management II.** Long-range planning and management of the long-term financial position of a business organization; capitalization and liquidation. 3 units . Prerequisite: Mgt 141

148 **Special Topics in Finance** 3 units Prerequisite: Mgt 141 or COI

160 **Law and Business.** Basic concepts of governmental promotion and regulation of business through law and how they affect business decisions. 3 units. Prerequisite: Junior Standing

161 **Law on Business Transactions and Transportation.** Obligations, contracts, sales, bailments, quasi-delicts, damages, law on common carriers, Code of Commerce on Transportation, Carriage of Goods by Sea Act, and all other related laws. 3 units.

162 **Law on Business Organizations and Labor.** Single proprietorships, partnerships, corporations, cooperatives, Securities Act, laws on insolvency, civil code provision on the order of preference and concurrence or credits; labor code. 3 units. Prerequisite: Mgt 161.

168 **Special Topics in Business Law.** 3 units Prerequisite: Mgt 160 or or BA 160 or consent

170 **Introduction to Marketing Management.** Marketing institutions; marketing policies and methods for products and services in a variety of manufacturing and service industries. 3 units Prerequisite: Junior Standing

173 **Marketing Management.** Marketing management from the point of view of the firm; covers other tools available or used by the marketing units of the firm: promotion, advertising, channels of distribution, marketing research, marketing planning and control and the marketing organization. 3 units. Prerequisite: Mgt 170

178 **Special Topics in Marketing** 3 units Prerequisite: Mgt 170 or BA 170 or consent.

181 **Management Science.** The use of management science/operations research (MS/OR) in the analysis of business problems concerning with production, marketing, human resources, and finance. 3 units. Prerequisite: Math 11, 14, and 101.

183 **Introduction to Information Systems.** An introduction to computer and information systems, network and telecommunications basics; Internet basics; foundations of information systems in management; and, using IT for strategic advantage. 3 units. (2 lec, 3 lab) Prerequisite: Mgt 101

186 **Management of Information Systems and Technology.** Strategic application of information systems and technology for effective managerial decision-making and policy formulation and implementation; and, effective management of technological advances in planning and control. 3 units (2lec, 3 lab). Prerequisite: Mgt 183

187 **Operations Management.** Principles, procedures, and techniques in the design, operation, and improvement of production systems. 3 units. Prerequisite: Mgt 101 and 181

190 **Strategic Management.** Integration of the functional fields of business, stress being given to solving comprehensive case problems of business organization and management. 3 units. Prerequisite: Graduating.

191 **Enterprise Planning and Management.** Activities and dynamics involved in planning and developing a new enterprise. 3 units. Prerequisite: Mgt 115, 121, 162, 170, 187

192 **Management of Small Business.** Management of small business focuses on the practical aspects of successfully launching and managing small businesses. 3 units. Prerequisite: Mgt 191.

196 **Practicum.** Fieldwork component to provide senior students with opportunities to relate management theories and principles learned in lcass to the actual operations of a private/public organization. 3 units. Prerequisite: Senior Standing.

197 **Special Topics in Management.** 3 units (may be taken for credit more than once). Prerequisite: Consent.

199 **Management Research.** 3-6 units. Prerequisite: Senior Standing.

Public Management (PM)

101 **The Philippine Administrative System.** The general structure of the Philippines bureaucracy; its principal operating features, including the personnel system, the financial system, central tendencies in decision making and national-local relations; and major problem areas. 3 units. Prerequisite: Pol Sci 14.

113 **Administrative Communication.** Theoretical knowledge, verbal and written techniques applicable to the business domain. 3 units. Prerequisite: Junior Standing.

135 **Public Fiscal Administration.** The organization and procedure of efficient fiscal management including purchasing, tax administration, expenditure, control, auditing, and debt administration. Emphasis is placed on fiscal administration as an auxiliary service to the chief executive. 3 units. Prerequisite: PM 101 or consent

140 **Program Administration.** Planning, implementation, monitoring and evaluation of development programs. 3 units. Prerequisite: PM 101 and Junior Standing.

141 **Public Administration and Economic Order.** Consideration of the economic goals of the nation as indicated by legislation, economic plans, and declared public policies; the principal methods of governmental control over the economic order; and the role of administration in the implementation of these policies and control. 3 units. Prerequisite: PM 101 or consent

142 **Politics and Administration.** The administrative process in its political setting; the formal and informal influences on the bureaucracy. 3 units.

146 **Administrative Law.** An examination of those basic principles of law with which the administrator should be familiar; judicial restraints on administrative process, judicial enforcement of administrative decisions and legal remedies against administrative action. 3 units.

151 **Local Government and Administration.** The administrative organizations and operations of local governments. 3 units.

171 **Public Administration and Social Change.** The interaction of administrative and social factors in Filipino national development, the social constraints on administrative behavior. 3 units. Prerequisite: MGT 104. and PM 101

Graduate Courses

Business Management (BM)

211 **Management Science.** Various techniques or deterministic optimization involving univariate and multivariate functions. Includes differential and integral calculus, linear systems and matrices, and an introduction to linear programming. 3 units.

220 **Management Accounting and Control.** Financial accounting policy in public and private organizations within the framework of accounting conventions; managerial cost accounting; responsibility accounting; introduction to managerial accounting systems. 3 units.

222 **Financial Management.** Short range financial planning and the management of the working capital of a business organization. 3 units. Prerequisite: BM 220.

230 **Marketing Management.** The management of the marketing function of a business enterprise. The nature and dynamics of demand, the major marketing problems confronting management in adapting to demand conditions, the development of pricing strategies for new and existing products, and the use of marketing research. 3 units.

236 **Global Trade and Marketing.** Strategies in target market selection, market entry and expansion, export management, and global marketing, with emphasis on foreign market analysis and trade promotion. 3 units.

238 **Enterprise Development and Management.** Dynamics of new enterprise creation, planning and management; entrepreneurial development, strategy formulation and implementation particularly in small and medium-scale enterprises. 3 units.

240 **Operations Management.** The scope and responsibilities of the production/ operations function with emphasis on the planning, organizing and assembling of resources in a production or service enterprise. 3 units.

Management (Mgt)

201 **Theory and Practice of Management.** Introductory course in management. Basic concepts, theories and practices of management as applied to public, business, educational and health services. Emphasizes relationship between theory and practice. 3 units.

202 **Organizational Behavior.** The social and human dimensions in organizations that influence the ways in which managers organize processes and manage people. 3 units.

204 **Theory and Practice in Rural Development Management.** Concepts and approaches, goals, policies and strategies for rural development; rural development institutions; administrative processes and techniques; planning and implementation of rural development programs; and special issues in rural development. 3 units.

205 **Economic Analysis.** Economic theory and policy with reference to Philippine developmental setting. 3 units.

216 **Natural Resource and Environmental Economics.** Fundamental elements of the economic approach to natural resource and environmental issues; theoretical foundation and methods of application of environmental criteria in appraising and evaluating investment projects, particularly in the public sector, which may have significant environmental impact. 3 units.

221 **Human Resource Management.** Organization, processes and procedures in the management of human resources in different types of organizations. 3 units. Prerequisite: Mgt 201.

222 **Financial Management.** Short range financial planning and the management of the working capital of a business organization. 3 units.

243 **Program Development and Management.** Systematic analysis, planning, implementation and evaluation of programs and projects for effective service delivery and management. 3 units.

254 **Cooperatives Management.** Deals with structures, processes and problems of cooperatives in the Philippine rural context. 3 units.

271 **Management of Change.** Factors influencing change in the internal and external environments of organizations; developments in the global settings; strategies and approaches related to the acceptance and diffusion of innovations. 3 units.

273 **Integrated Area Resource Management.** Concepts and approaches to sustainable resource and institutional development as applied to the upland, lowland and coastal areas. 3 units.

274 **Food Systems Management.** Concepts of sustainability, livelihood, equity, gender and governance and the operationalization of these concepts in the management of food systems. 3 units.

276 **Social Mobilization and Community Management.** Social awareness to motivate and mobilize community participation in local development; strategies in community needs assessment, conceptualization and implementation of community-based programs. 3 units.

286 **Management of Information Systems and Technology.** Information dimensions of decision-making processes; effective management of technological advances in planning and control; strategic approaches and application of information systems and technology for effective managerial decision-making and policy formulation and implementation. 3 units (2 lec, 3 lab). Prerequisite: Mgt 201

290 **Strategic Management.** The functions and responsibilities of top management in an organization; factors that affect organizational performance, and the decisions that determine or influence the character, operations, survival and competitiveness of different types of organizations. 3 units. Prerequisite: Mgt 201

297 **Special Topics in Management.** Critical analysis of management principles and theories as applied to contemporary issues and problems in management settings, either local, national or international. 3 units (may be taken twice).

299 **Management Research.** Research methods and applications in the field of management. 3 units.

Planning (Plan)

201 **Theory and Practice of Planning.** Theories and concepts in urban and regional planning. 3 units.

203 **Land-Use Planning.** Policies, land use planning and control measures for land development 3 units.

205 **Project Planning and Development.** Analytic tools for project planning, management, and development.
3 units

210 **Planning Process.** Comprehensive planning process and implementation. 3 units

210.1 **Planning Workshop.** Practical workshop application of planning. 5 units.

214 **Planning Analysis Techniques.** Land studies and techniques of spatial analysis. 3 units.

222 **Resource Use and Development.** Effects of resource use and development on social, technical and economic problems. 3 units.

231 **Site Planning.** Detailed site analysis and planning. 3 units

299 **Research Methods in Planning.** Major research methods and concepts applicable to planning. 3 units.

Public Management (PM)

201 **Theory and Practice of Public Administration.** Ideas, issues and trends in public administration; the role of the bureaucracy in national development. 3 units.

211 **Public Organization and Governance.** Concepts, values, processes, structures, tools, trends and challenges in managing the public sector and public affairs, and the shifting orientations in Public Administration. 3 units.

213 **Administrative Communication.** Communication and its role in decision making, including installation and maintenance of management information systems. 3 units

231 **Public Fiscal Management.** Organization, processes and procedures of fiscal administration covering such areas as revenue administration, budgeting, accounting, auditing and inter-governmental fiscal relations. 3 units.

241 **Public Policy Management.** Policy information and implementation at the program level; planning, implementation and evaluation of development programs. 3 units.

250 **Local Government Management.** The structure and functions of Philippine local governments; national-local relations; and citizens' participation in the planning and implementation of governmental programs. 3 units.

252 **Administration of Rural Development.** Strategies and administrative problems in the promotion and implementation of rural development. 3 units. Prerequisite: PM 250

298 **Seminar in Governmental Management.** 3 units.

BACHELOR OF SCIENCE IN ACCOUNTANCY

First Year First Semester

Course No.	Course Title	Units
GE AH1*		3
GE SSP1*		3
GE SSP2*		3
GE MST1		3
GE MST2		3
Math 11	College Algebra	3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		18

First Year Second Semester

Course No.	Course Title	Units
GE AH2*		3
GE SSP3*		3
GE SSP4*		3
GE MST3		3
Math 14	Plane Trigonometry	3
Pol Sci 14	Philippine Government and Politics	3
PE		(2)
NSTP		(3)
		18

Second Year First Semester

Course No.	Course Title	Units
GE AH3*		3
GE SSP5*		3
Math 100	Introduction to Calculus	4
Econ 11	Introductory Economics	3
BA 183.1	Introduction to IT	3
BA 99.1	Fundamental Acctng Theory and Practice I	3
PE		(2)
		19

Second Year Second Semester

Course No.	Course Title	Units
GE AH4*		3
BA 101	Introduction to Management	3
Math 101	Elementary Statistics	3
Econ 101	Macroeconomics	3
Eng 11	Technical writing for Business	3
BA 99.2	Fundamental Accounting Theory and Practice II	3
BA 183.2	Basic Programming and DBM	3
PE		(2)
		21

Third Year First Semester

Course No.	Course Title	Units
GE AH5*		3
Fil 10	Pag-uusap	3
Econ 102	Microeconomics	3
GE MST4		3
BA 161	Law on Business Transactions	3
BA 114.1	Accounting Theory and Practice I	6
		21

Third Year Second Semester

Course No.	Course Title	Units
Fil 11	Pagtatalakay	3
BA 170	Introduction to Marketing Management	3
BA 114.2	Accounting Theory and Practice II	6
BA 116	Cost Accounting	6
BA 162	Law on Business Organizations and Labor	3
		21

Fourth Year First Semester

Course No.	Course Title	Units
BA 104	Organizational Behavior	3
Econ 121	Money and Banking	3
BA 164	Negotiable Instruments and Ins.	3
BA 127	Tax Accounting I	3
BA 117	Management Cost Accounting and Control	3
BA 118.1	Advanced Accounting I	6
		21

Fourth Year Second Semester

Course No.	Course Title	Units
BA 181	Management Science	3
BA 167	Sales and Bailments and other Special Laws	3
BA 128	Tax Accounting II	3
BA 141	Business Finance I	3
BA 118.2	Advanced Accounting II	6
BA 120.1	Audit Theory	3
		21

Summer

Course No.	Course Title	Units
BA 196	Public Accounting Practice	**3**

Fifth Year First Semester

Course No.	Course Title	Units
BA 184.1	Computer-based Accounting Systems	3
BA 119	Special Topics in Accounting Theory	3
BA 122	Government Accounting and Auditing	3
BA 187	Operations Management	3
BA 120.2	Audit Practice	6
BA 142	Business Finance II	3
		21

Fifth Year Second Semester

Course No.	Course Title	Units
PI 100	The Life and Works of Jose Rizal	3
BA 190	Strategic Management	3
BA 129	Management Services	3
BA 145	Investments	3
BA 199	Business Research	3
BA 184.2	Audit of Computer-based Accounting Systems	3
		18

TOTAL NUMBER OF UNITS **202 units**

*Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION MAJOR IN MARKETING

First Year First Semester

Course No.	Course Title	Units
Math 11	College Algebra	3
GE AH 1*		3
GE SSP 1*		3
GE SSP 2*		3
GE MST 1		3
GE MST 2		3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		18

First Year Second Semester

Course No.	Course Title	Units
Econ 11	Introductory Economics	3
Math 14	Plane Trigonometry	3
GE AH 2*		3
GE SSP 3*		3
GE SSP 4*		3
GE MST 3		3
PE		(2)
NSTP		(3)
		18

Second Year First Semester

Course No.	Course Title	Units
BA 99.1	Fundamental Accounting Theory and Practice I	3
Math 100	Introduction to Calculus	4
Econ 101	Macroeconomics Theory and Policy	3
GE AH 3*		3
GE SSP 5*		3
PE		(2)
		3
		16

Second Year Second Semester

Course No.	Course Title	Units
Math 101	Elementary Statistics	3
BA 99.2	Fundamental Accounting Theory and Practice II	3
Eng 11	Technical Writing for Business	3
BA 183.1	Introduction to Information Technology	3
Econ 102	Microeconomics	3
GE MST 4		3
PE		(2)
		18

Third Year First Semester

Course No.	Course Title	Units
BA 101	Introduction to Business Management	3
BA 183.2	Basic Programming and Database Management	3
BA 170	Introduction to Marketing Management	3
BA 115	Management Accounting	3
BA 181	Quantitative Methods	3
GE AH 4*		3
		18

Third Year Second Semester

Course No.	Course Title	Units
BA 104	Organizational Behavior	3
BA 187	Production Management	3
BA 174	Marketing Research	3
BA 171	Advanced Marketing Management	3
BA 179	Law and Marketing	3
GE AH 5*		3
		18

Fourth Year First Semester

Course No.	Course Title	Units
BA 172	Integrated Marketing Communications	6
BA 173	Marketing Logistics	3
BA 176	Sales Management	3
BA 141	Business Finance I	3
Elective[1]		3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
BA 175	International Marketing	3
BA 178	Seminar in Marketing Mgt	3
BA 190	Business Policy	3
BA 142	Business Finance II	3
PI 100	The Life and Works of Jose Rizal	3
Elective[1]		3
		18

TOTAL NUMBER OF UNITS 142 units

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

[1] Any 100-level course offered by the College of Management

BACHELOR OF SCIENCE IN MANAGEMENT

First Year First Semester

Course No.	Course Title	Units
Math11	College Algebra	3
GE AH 1*		3
GE AH 2*		3
GE MST 1		3
GE SSP 1*		3
GE SSP 2*		3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		18

First Year Second Semester

Course No.	Course Title	Units
Math 14	Plane Trigonometry	3
GE AH 3*		3
GE AH 4*		3
GE MST 2		3
GE SSP 3*		3
GE SSP 4*		3
PE		(2)
NSTP		(3)
		18

Second Year First Semester

Course No.	Course Title	Units
GE AH 5*		3
GE MST 3		3
GE SSP 5*		3
Math 100	Introduction to Calculus	4
BA 99.1	Fundamentals of Accounting Theory and Practice I	3
Mgt. 101	Introduction to Management	3
PE		(2)
		19

Second Year Second Semester

Course No.	Course Title	Units
Econ 11	Introductory Economics	3
Pol Sci 14	Philippine Government and Politics	3
Math 101	Elementary Statistics	3
BA 99.2	Fundamentals of Accounting Theory and Practice II	3
Mgt 104	Organizational Behavior	3
Mgt 183	Introduction to Information Systems	3
PE		(2)
		18

Third Year First Semester

Course No.	Course Title	Units
Mgt 121	Human Resource Management	3
Mgt 161	Law on Business Transactions and Transportation	3
Mgt 170	Introduction to Marketing Management	3
Mgt 181	Management Science	3
Mgt 186	Management of Information Systems and Technology	3
Econ 101	Macroeconomic Theory and Policy	3
		18

Third Year Second Semester

Course No.	Course Title	Units
Mgt 115	Management Accounting	3
Mgt 162	Law on Business Organizations and Labor	3
Mgt 187	Operations Management	3
Econ 102	Microeconomics	3
Eng 11	Technical Writing for Business	3
GE MST 4		3
		18

Summer

Course No.	Course Title	Units
Mgt 196	Practicum	3

Course No.	Course Title	Units

Fourth Year First Semester

Course No.	Course Title	Units
Mgt 141	Financial Management I	3
Mgt 197	Special Topics in Management	3
Mgt 199	Management Research	3
PI 100	The Life and Works of Jose Rizal	3
Elective		3
Elective		3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
Mgt 142	Financial Management II	3
Mgt 190	Strategic Management	3
Mgt 191	Enterprise Planning and Development	3
Elective		3
Free Elective		3
		15

TOTAL NUMBER OF UNITS **145 Units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

MASTER OF MANAGEMENT (BUSINESS MANAGEMENT)

(for Part-time Students)

First Year First Trimester

Course No.	Course Title	Units
Mgt 201	Theory and Practice of Management	3
Mgt 205	Economic Analysis	3
		6

First Year Second Trimester

Course No.	Course Title	Units
Mgt 221	Human Resource Management	3
Mgt 286	Management of Information Systems and Technology	3
		6

First Year Third Trimester

Course No.	Course Title	Units
BM 211	Management Science	3
BM 230	Marketing Management	3
		6

Second Year First Trimester

Course No.	Course Title	Units
BM 220	Management Accounting and Control	3
BM 240	Operations Management	3
		6

Second Year Second Trimester

Course No.	Course Title	Units
BM 222	Financial Management	3
Mgt 299	Management Research	3
		6

Second Year Third Trimester

Course No.	Course Title	Units
Mgt 290	Strategic Management	3
Elective		3
		6

TOTAL NUMBER OF UNITS **36 units**

MASTER OF MANAGEMENT (PUBLIC MANAGEMENT)

(for Part-time Students)

First Year First Trimester

Course No.	Course Title	Units
Mgt 201	Theory and Practice of Management	3
Mgt 205	Economic Analysis	3
		6

First Year Second Trimester

Course No.	Course Title	Units
Mgt 221	Human Resource Management	3
Mgt 286	Management of Information Systems and Technology	3
		6

First Year Third Trimester

Course No.	Course Title	Units
PM 211	Public Organization and Governance	3
PM 231	Public Fiscal Management	3
		6

Second Year First Trimester

Course No.	Course Title	Units
PM 241	Public Policy Management	3
PM 250	Local Government Management	3
		6

Second Year Second Trimester

Course No.	Course Title	Units
PM 298	Seminar in Governmental Management	3
Mgt 299	Management Research	3
		6

Second Year Third Trimester

Course No.	Course Title	Units
Mgt 290	Strategic Management	3
Elective		3
		6

TOTAL NUMBER OF UNITS **36 units**

MASTER OF MANAGEMENT (BUSINESS MANAGEMENT)

(for Full-time Students)

First Year First Trimester

Course No.	Course Title	Units
Mgt 201	Theory and Practice of Management	3
Mgt 205	Economic Analysis	3
Mgt 286	Management of Information Systems and Technology	3
		9

First Year Second Trimester

Course No.	Course Title	Units
BM 211	Management Science	3
BM 230	Marketing Management	3
Mgt 221	Human Resource Management	3
		9

First Year Third Trimester

Course No.	Course Title	Units
BM 220	Management Accounting and Control	3
BM 240	Operations Management	3
Mgt 299	Management Research	3
		9

Second Year First Trimester

Course No.	Course Title	Units
BM 222	Financial Management	3
Mgt 290	Strategic Management	3
Elective		3
		9

TOTAL NUMBER OF UNITS **36 units**

MASTER OF MANAGEMENT (PUBLIC MANAGEMENT)

(for Full-time Students)

First Year First Trimester

Course No.	Course Title	Units
Mgt 201	Theory and Practice of Management	3
Mgt 205	Economic Analysis	3
Mgt 286	Management of Information Systems and Technology	3
		9

First Year Second Trimester

Course No.	Course Title	Units
PM 211	Public Organization and Governance	3
PM 231	Public Fiscal Management	3
Mgt 221	Human Resource Management	3
		9

First Year Third Trimester

Course No.	Course Title	Units
PM 241	Public Policy Management	3
PM 250	Local Government Management	3
Mgt 299	Management Research	3
		9

Second Year First Trimester

Course No.	Course Title	Units
PM 298	Seminar in Governmental Management	3
Mgt 290	Strategic Management	3
Elective		3
		9

TOTAL NUMBER OF UNITS **36 units**

DIPLOMA IN URBAN AND REGIONAL PLANNING

(for Part-time Students)

First Year First Semester

Course No.	Course Title	Units
Plan 201	Theory and Practice of Planning	3
Plan 210	Planning Process	3
		6

First Year Second Semester

Course No.	Course Title	Units
Plan 214	Planning Analysis Techniques	3
Plan 299	Research Methods in Planning	3
		6

First Year Summer

Course No.	Course Title	Units
Plan 203	Land-Use Planning	3
Plan 205	Project Planning and Development	3
		6

Second Year First Semester

Course No.	Course Title	Units
Plan 210.1	Planning Workshop	5
Plan 231	Site Planning	3
		8

TOTAL NUMBER OF UNITS **26 units**

DIPLOMA IN URBAN AND REGIONAL PLANNING

(for Full-time Students)

First Year First Semester

Course No.	Course Title	Units
Plan 201	Theory and Practice of Planning	3
Plan 210	Planning Process	3
Plan 214	Planning Analysis Techniques	3
Plan 299	Research Methods in Planning	3
		12

First Year Second Semester

Course No.	Course Title	Units
Plan 210.1	Planning Workshop	5
Plan 231	Site Planning	3
		8

First Year Summer

Course No.	Course Title	Units
Plan 203	Land-Use Planning	3
Plan 205	Project Planning and Development	3
		6

TOTAL NUMBER OF UNITS **26 units**

SCHOOL OF TECHNOLOGY

The School of Technology (SOTECH), formerly the School of Technology and Environmental Resources (STER), was established on March 29, 1984 as the fifth degree-granting unit of the U.P. in the Visayas. It was formally operationalized on February 17, 1986 with the transfer of the Food Technology program, along with its faculty, from the College of Arts and Sciences.

On April 22, 1993 the name of the School was changed from STER to SOTECH. Along with this change of name was a modification of its mandate for it to become more responsive to the needs of the region and nation.

The School's mission is to provide highly trained manpower, generate appropriate and environmentally sound technologies, and assist in the proper management of the environment for regional development and nation building.

VISION

To be a lead institution in food, environment, and engineering in the Visayas.

MISSION

To provide highly trained manpower, generate and transfer appropriate environment-friendly technologies, and assist in regional and national development.

Undergraduate Programs

1. Bachelor of Science in Chemical Engineering
2. Bachelor of Science in Food Technology

SOTECH COURSES

Undergraduate Courses

Chemical Engineering (ChE)

31 **Introduction to Chemical Engineering.** Problem-solving techniques. Principles of equilibrium as applied to unit operations and thermodynamics. Elementary mass and energy balances. 3 units. Prerequisite: Chem 17, Math 54.

32 **Industrial Stoichiometry.** Analysis of industrial processes: gaseous, liquid and solid fuels, sulfur and nitrogen compounds, lime and cement. 3 units (2 lec, 3 lab) Prerequisite: ChE 31.

122 **Chemical Engineering Thermodynamics I.** Applications of the first and second laws of thermodynamics. Thermodynamic properties of fluids. 3 units. Prerequisites: Chem 153, ChE 32

123 **Chemical Engineering Thermodynamics II.** Thermodynamics of flow processes. Power cycles, refrigeration and liquefaction processes. Thermodynamic properties of homogeneous mixtures. Phase and chemical reaction equilibria. 3 units. Prerequisite: ChE 122.

124 **Chemical Engineering Thermodynamics Laboratory.** Experiments on the PVT behavior, phase and chemical reaction equilibria and thermodynamic properties of homogeneous mixtures. 2 units (6 lab) Prerequisite: ChE 123.

125 **Chemical Reaction Engineering I.** Kinetics of homogeneous reactions. Analysis of various chemical reactors. 3 units. Prerequisites: Chem 31, 31.1, ChE 123.

126 **Chemical Reaction Engineering II.** Kinetics of heterogeneous reactions. Catalysis. Heterogeneous reactors. Application of kinetics and thermodynamics to selected unit processes. 3 units. Prerequisite: ChE 125.

131 **Transport Processes.** Fundamentals of heat, mass and momentum transport. Differential balances; equations of change. Molecular and turbulent transport systems. Applications to interphase transfer. 3 units. Prerequisites: ChE 31, ES 21.

132 **Stagewise Operations.** Unified treatment of stagewise operations. Numerical and graphical solution techniques. Design of multistage equipment. 3 units. Prerequisite: ChE 32.

133 **Process Equipment Design I.** Applications of the principles of separation and rate processes to the design of heat and mass transfer equipment. 3 units. Prerequisite: ChE 131, 132.

134 **Process Equipment Design II.** Applications of the principles of momentum transfer to process equipment design. The energy balance in flow systems. Materials handling. 3 units. Prerequisite: ChE 131.

135 **Unit Operations Laboratory I.** Experimental study of certain unit operations and processes. 2 units (6 lab). Prerequisites: ChE 133, 134.

136 **Unit Operations Laboratory II.** Continuation of ChE 135. 2 units (6 lab). Prerequisite: ChE 135.

140 **Chemical Process Industries.** Unit processes and operations in the inorganic and organic chemical industries. Non-conventional energy sources. Case studies. 3 units. Prerequisite: ChE 133, 134, Chem 31

141 **Plant Design I.** The design of an industrial plant, including the necessary processes and equipment design and sizing. Emphasis on the economic factors. 3 units (2 lec, 3 lab). Prerequisite: ChE 122, 140.

142 **Plant Design II.** Continuation of ChE 141. 3 units (1 lec, 6 lab). Prerequisite: ChE 141.

171 **Introduction to Biochemical Engineering.** Basic microbiology and biochemistry. Enzyme and fermentation kinetics. Continuous culture. Mass transfer in biological system. 3 units. Prerequisite: Chem 31, Nat Sci II.

172 **Chemical Process Dynamics and Control.** Introduction to process dynamics and simple chemical systems. 3 units. Prerequisite: ES 26, 5th year standing.

173 **Industrial Pollution Control.** Types, sources and harmful effects of industrial pollutants. Measurement of pollution parameters. 3 units. Prerequisite: COI

174 **Biochemical Engineering Laboratory.** Elementary experiments in biochemical engineering. 1 unit (3 lab). Corequisite: ChE 171.

190 **Plant Inspection and Seminar.** Visits to factories, chemical plants. Reports on such visits. Reports on assigned readings from technical literature. 2 units (1 lec, 3 lab). Prerequisite: Candidacy for graduation.

197 **Special Topics.** 3 units (may be taken twice).

198 **Special Problems.** 3 units (may be taken twice).

Electrical Engineering (EE)

6 **Essentials of Electrical Engineering I.** Fundamentals of electric and magnetic circuits. Analysis of DC and AC circuits. DC machines. Introduction to transformers and to electronics. 4 units (3 lec, 3 lab). Prerequisite: Math 54, Phys 72

Environmental Science (EnS)

11 **Introduction to Technology and Environment.** Principles of environmental and technological developments, perspective and scenario of ecology, energy and materials, population and socio-economic factors, air and water quality and management, environmental wastes and its management. 3 units. Prerequisite: Third year standing.

110 **Waste Management in Industries.** Sources, types, quantities and characteristics of wastes generated by industries; waste management approaches suitable to the industrial environment with emphasis on waste minimization and end-of-the-pipe treatment schemes, disposal alternatives; legal and social dimensions of industrial waste management; emphasis on food and related industries. 3 units. Prerequisite: Senior Standing or COI.

Environmental Resource Management (ERM)

100 **Introduction to Environmental Resource Management.** Ecosystem structures, functions, dynamics and modules. Concepts and applications in environmental management. 4 units (2 lec, 6 lab).

108 **Community Mobilization for Environmental Resource Management.** Development framework, people's participation and empowerment, gender and environment, methods and techniques in community mobilization, and participatory project management. 3 units.

110 **Methods in Environmental Resource Management.** Principles and techniques of environmental resource management. 3 units.

114 **Environmental Policies, Legislations and Strategies.** Existing environmental policies, laws, their implementation and limitations. 2 units.

116 **Natural Resource and Environmental Economics.** Economic theory concerned with the economic use of natural resources along with the physical, biological, economic and institutional factors that affect the condition of and control over the utilization of such resources. 3 units (2 lec, 3 lab).

125 **Environmental Pollution.** Nature, composition, causes, effects and control of pollution. 3 units.

128 **Waste Management.** Nature, composition, quantity of solid, liquid and gaseous wastes by residential, commercial and industrial establishments, disposal, recycling and treatment methods and management. 3 units.

129 **Environmental Process Technology.** Principles of environmental unit operations and processes; theory and design of treatment units, with emphasis on physical and chemical treatment of waters. 4 units 3 lec, 3 lab).

130 **Coastal Anthropology.** Study of human activity in a single or multi-ecological zone where fishing and fishing-related activities are undertaken. 3 units

131 **Coastal Processes.** Physical, chemical, biological, and geological processes affecting coastal dynamics and production. 3 units.

135 **Coastal Fisheries and Management.** Resource allocation, management, conservation, utilization of coastal environment for coastal fisheries production. 3 units.

140 **Land Resource Management.** Land classification, principles and practices of conservation, approaches to watershed conservation with emphasis on the upland. 4 units (3 lec, 3 lab).

143 **Freshwater Ecosystem.** Components, organization and dynamics of the freshwater ecosystem. 3 units (2 lec, 3 lab) Prerequisite: ERM 100 or its equivalent.

145 **Water Resource Management.** Water impounding technology, hydrology, water quality management in the watershed. 3 units (2 lec, 3 lab).

198 **Special Problem.** 3 units. Prerequisite: Completion of 15 units core courses and/or consent of program adviser.

Engineering Sciences (ES)

1 **Engineering Drawing.** Technical sketching, lettering, instrumental drawing. Multiview projections. Pictorial drawing. Conventions and dimensioning. Graphs and charts. 2 units (6 lab)

11 **Statics of Rigid Bodies.** Fundamental principles of mechanics and their applications to the simpler engineering problems involving static equilibrium. Forces and moments; their components and resultants; their vector representation. System of discrete as well as continuously distributed forces. Frames, trusses, cables, friction; first and second moments of length; area, volume, mass. 3 units. Prerequisites: Math 54 and Phys 71/COC.

12 **Dynamics of Rigid Bodies.** Motion of particles and rigid bodies; force, mass and acceleration; work and energy; impulse and momentum. Introduction to vibrations and balancing. 3 units. Prerequisite: ES 11.

13 **Mechanics of Deformable Bodies I.** Analysis and design of structural and machine elements, such as tension and compression members, shafts, beams and columns, based on equilibrium and material properties. Elementary stress and strain analysis. Riveted and welded connections. Members of two or more materials. 3 units. Prerequisite: ES 11.

21 **Mathematical Methods in Engineering.** Mathematical treatment of problems in engineering sciences. Introduction to ordinary differential equations, Fourier series, Laplace transformation, and vector analysis. 3 units. Prerequisite: Math 55.

26 **Computer Programming.** Concepts and methods of programming for stored program digital computation; computer solutions of engineering problems. Individual projects. 3 units (2 lec, 3 lab). Prerequisite: Math 53.

Food Technology

11 **Introduction to Food Technology.** Introduction to food science and technology with emphasis on sources and processing of foods, work/job opportunities of food technologists, responsibilities of food technologists to man and society. 1 unit.

14 **Principles of Food Preparation.** Fundamental principles of food preparation. Basic recipes are prepared with a focus on their use in meals. 3 units (2 lec, 3 lab)

15 **Introduction to Food Microbiology.** Fundamental principles in microbiology, classification, characterization, properties and identification of microorganisms; culture and staining techniques. 4 units (2 lec, 6 lab). Prerequisite: Bio 10 and FT 11. Corequisite: Chem 16.

100 **Food Microbiology and Toxicology.** Morphology and physiology of microorganisms in relation to food preservation and food spoilage, microbiological analysis and evaluation of the safety and wholesomeness of foods; food hazards and toxicants; food laws and regulations. 5 units (3 lec, 6 lab). Prerequisite: FT15.

101 **Statistical Methods in Food Research I.** Basic concepts of statistics and probability, descriptive statistics, discrete and continuous random variables and some of their common distributions, estimation techniques, test of hypothesis. 3 units. Prerequisites: FT 11 and Math 11 or equivalent.

102 **Statistical Methods in Food Research II.** Experimental research designs, certain non-parametric tests, applications of research designs to food problems. 3 units. Prerequisite: FT 101.

110 **Food Processing I.** Principles of food preservation; low-temperature preservation, minimal processing, dehydration and fermentation technology. 3 units (2 lec, 3 lab). Prerequisite: FT 100.

111 **Food Processing II.** Thermal processing, irradiation, and use of chemical additives in food processing/preservation, packaging for thermally processed foods. 3 units (2 lec, 3 lab). Prerequisite: FT 110.

122 **Quality Assurance in Food Industries.** Principles of food quality assurance; specifications and standards of food quality; methods of evaluation and monitoring of food quality - raw material, in-process, and finish product assessment. 3 units (2 lec, 3 lab). Prerequisite: FT 102.

123 **Food Packaging Technology.** Physical, microbiological, chemical and functional characteristics of food packaging material and packages as basic factors in commercial food production. 2 units. Prerequisite: FT 111.

125 **Sensory Evaluation.** Principles and methods of sensory evaluation, its importance and applications in quality assurance, food research and food production/processing and marketing. 3 units. Prerequisite: FT 102 and FT 111.

130 **Food Chemistry I.** Proteins, carbohydrates and lipids in foods - classes, properties, metabolism and reactions. 3 units. Prerequisite: Chem 31.

131 **Food Chemistry II.** Food pigments, flavor compounds, vitamins and other secondary components of food - classes, properties, metabolism, development, and changes during handling, processing and storage. Changes in proteins, carbohydrates and lipids during processing and storage. 5 units (3 lec, 6 lab). Prerequisites: FT 111 and FT 130

141 **Food Analysis.** Principles and techniques of physical and chemical methods of analyses as applied to food and food products. 5 units (3 lec, 6 lab). Prerequisite: FT 131 and Chem 28

150 **Food Engineering I.** Unit operation principles and their applications in food processing: material and energy balances, fluid mechanics, theory and applications of heat transfer. 4 units (3 lec, 3 lab). Prerequisite: Phys 21 and Math 100.

151 **Food Engineering II.** Unit operation principles and their applications in food processing: unit operations involving simultaneous heat and mass transfer, contact-equilibrium separation processes, size reduction and mixing. 4 units (3 lec, 3 lab). Prerequisite: FT 150.

154 **Food Enterprise Management.** Introduction to the theories and values of entrepreneurship and the practices in food enterprise development and management. 3 units. Prerequisite: Senior Standing.

160 **Computer Applications in Food Technology.** Software applications for word processing, data organization and analysis, and presentation, with emphasis on food technology applications. 3 units (2 lec, 3 lab). Prerequisite: COI.

170 **Internship in Industries.** 6 units (minimum of 288 hours plant practice in food industries). Prerequisite: FT 111, FT 122, and FT 125.

175 **Food Safety.** Causes, symptoms and prevention of food-borne illnesses, good manufacturing practices (GMP), standard sanitary operating procedures (SSOP) and hazards analysis and critical control points (HACCP) in food industries. 2 units . Prerequisite: FT 111.

180 **Post harvest Technology of Fruits and Vegetables.** Principles and methods of harvesting, handling and maturity indices, control of storage environment, pre-processed packaging techniques, and methods of reducing post harvest losses. 3 units. Prerequisite: FT 130.

190 **Undergraduate Seminar.** Special topics related to food science and technology. 1 unit. Prerequisite: Junior Standing.

195 **Methods in Food Research.** Basic concepts, techniques and methods of research in food science and technology. 3 units. Prerequisite: Senior Standing.

200 **Undergraduate Thesis.** 3 units. Prerequisite: Senior Standing.

Graduate Course

Energy (EGY)

201 **Energy Resources and Uses**. World and national energy use. Energy use by sector: industrial, residential, transport, etc. Urban and rural energy use patterns. World and national energy resources. Non-renewable sources and reserves such as oil, coal, gas. Renewable sources such as hydro, solar, geothermal, biomass, wind, tidal. 3 units. Prerequisite: COI.

BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING

First Year First Semester

Course No.	Course Title	Units
Math 17	Algebra and Trigonometry	5
Chem 16	General Chemistry I	5
GE AH 1*		3
GE SSP 1*		3
GE SSP 2*		3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		19

First Year Second Semester

Course No.	Course Title	Units
Math 53	Elementary Analysis I	5
Chem 17	General Chemistry II	5
Phys 71	Elementary Physics I	4
Phys 71.1	Elementary Physics I Lab	1
GE AH 2*		3
PE		(2)
NSTP		(3)
		18

Second Year First Semester

Course No.	Course Title	Units
Math 54	Elementary Analysis II	5
Chem 28	Quantitative Inorganic Analysis	3
Chem 28.1	Quantitative Inorganic Analysis Laboratory	2
Phys 72	Elementary Physics II	4
Phys 72.1	Elementary Physics II Lab	1
GE AH 3*		3
PE 2		(2)
		18

Second Year Second Semester

Course No.	Course Title	Units
Math 55	Elementary Analysis III	3
Chem 31	Elementary Organic Chemistry	3
Chem 31.1	Elementary Organic Chemistry Laboratory	2
Phys 73	Elementary Physics III	4
Phys 73.1	Elementary Physics III Laboratory	1
ChE 31	Introduction to Chemical Engineering	3
GE SSP3*		3
PE 2		(2)
		19

Third Year First Semester

Course No.	Course Title	Units
Chem 153	Physical Chemistry II	3
ChE 32	Industrial Stoichiometry	3
ES 1	Engineering Drawing	2
ES 11	Statics of Rigid Bodies	3
ES 21	Mathematical Methods in Engineering	3
GE MST 1		3
GE MST 2		3
		20

Third Year Second Semester

Course No.	Course Title	Units
ChE 131	Transport Processes	3
ChE 132	Stagewise Operations	3
ES 12	Dynamics of Rigid Bodies	3
ES 26	Computer Programming	3
GE SSP 4*		3
GE AH 4*		3
		18

Fourth Year First Semester

Course No.	Course Title	Units
ChE 122	Chemical Engineering Thermodynamics I	3
ChE 133	Process Equipment Design I	3
ChE 134	Process Equipment Design II	3
GE AH 5*		3
GE SSP 5*		3
Elective		3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
ChE 123	Chemical Engineering Thermodynamics II	3
ChE 135	Unit Operations Laboratory I	2
ChE 140	Chemical Process Industries	3
EE 6	Essentials of Electrical Engineering I	4
ES 13	Mechanics of Deformable Bodies I	3
Elective		3
		18

Fifth Year First Semester

Course No.	Course Title	Units
ChE 124	Chemical Eng'g Thermodynamics Laboratory	2
ChE 125	Chemical Reaction Engineering I	3
ChE 141	Plant Design I	3
ChE 172	Chemical Process Dynamics and Control	3
PI 100	The Life and Works of Jose Rizal	3
Elective		3
		17

Fifth Year Second Semester

Course No.	Course Title	Units
ChE 126	Chemical Reaction Engineering II	3
ChE 136	Unit Operations Laboratory II	2
ChE 142	Plant Design II	3
ChE 190	Plant Inspection and Seminar	2
GE MST 3		3
Elective		3
		16

TOTAL NUMBER OF UNITS **181 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

BACHELOR OF SCIENCE IN FOOD TECHNOLOGY

First Year First Semester

Course No.	Course Title	Units
FT 11	Introduction to Food Technology	1
Bio 10	Elementary Biology	5
Math 11	College Algebra	3
GE AH 1*		3
GE SSP1*		3
GE SSP 2*		3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		18

First Year Second Semester

Course No.	Course Title	Units
FT 15	Introduction to Food Microbiology	4
FT 14	Principles of Food Preparation	3
Math 14	Plane Trigonometry	3
Chem 16	General Chemistry I	5
GE AH 2*		3
PE		(2)
NSTP		(3)
		18

Second Year First Semester

Course No.	Course Title	Units
FT 100	Food Microbiology and Toxicology	5
Chem 17	General Chemistry II	5
GE SSP 3*		3
GE AH 3*		3
GE MST 1		3
PE		(2)
		19

Second Year Second Semester

Course No.	Course Title	Units
FT 101	Statistical Methods in Food Research I	3
FT 110	Food Processing I	3
Chem 31	Elementary Organic Chemistry	3
Chem 31.1	Elementary Organic Chemistry Laboratory	2
GE MST 2		3
GE AH 4*		3
GE AH 5*		3
PE		(2)
		20

Third Year First Semester

Course No.	Course Title	Units
FT 102	Statistical Methods in Food Research II	3
FT 111	Food Processing II	3
FT 130	Food Chemistry I	3
FT 190	Undergraduate Seminar	1
Phys 21	Introductory Physics	4
GE SSP 4*		3
Elective		2/3
		19/20

Third Year Second Semester

Course No.	Course Title	Units
FT 131	Food Chemistry II	5
FT 122	Quality Assurance	3
FT 125	Sensory Evaluation	3
Chem 28	Quantitative Inorganic Analysis	3
Chem 28.1	Quantitative Inorganic Analysis laboratory	2
Math 100	Introduction to Calculus	4
		20

Summer

Course No.	Course Title	Units
FT 170	Internship in Industries	6

Fourth Year First Semester

Course No.	Course Title	Units
FT 141	Food Analysis	5
FT 150	Food Engineering I	4
FT 195	Methods in Food Research	3
PI 100	The Life and Works of Jose Rizal	3
Elective 3		2/3
		17/18

Fourth Year Second Semester

Course No.	Course Title	Units
FT 151	Food Engineering II	4
FT 200	Undergraduate Thesis	3
GE MST 3		3
GE SSP 5*		3
Elective 4		3
		16

TOTAL NUMBER OF UNITS **153-155 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

UPV Tacloban College

In its 823rd meeting, the UP Board of Regents established UP College Tacloban as an answer to the urgent need for quality education in Region VIII. It was recognized as a regional unit of the UP System on May 23, 1973 and inaugurated on July 2, 1973.

Ten years later, Executive Order No. 4 placed UP College Tacloban under the administrative supervision of UP Visayas.

VISION

A Center of Academic Excellence in Eastern Visayas.

MISSION

- To be the premier institution of higher learning in Eastern Visayas
- To produce graduates who are humanist and development-oriented, critical, articulate, creative and service-oriented
- To preserve and enhance the Filipino culture

DEGREE PROGRAMS

Undergraduate Programs

Bachelor of Arts (Social Sciences)
- Political Science
- Economics

Bachelor of Arts (Communication Arts)
Bachelor of Arts (Psychology)
Bachelor of Science in Accountancy
Bachelor of Science (Biology)
Bachelor of Science in Computer Science
Bachelor of Science in Management

Graduate Program

Master of Management (Business Management)
Master of Management (Public Management)

UPVTC COURSES

DIVISION OF HUMANITIES

General Education Courses

Communication (Comm) – AH

1 **Communication Skills.** The development of communicative competence in English, with emphasis on reading, writing, and listening skills. 3 units.

2 **Communication Skills.** The development of more advanced language skills in logical thinking, critical reading and effective writing. 3 units.

3 **Speech Communication.** Development of communicative competence with aural and oral skills in various communication situations. 3 units.

English (Eng) – AH

2 **Read Right, Write Right.** The development of reading and writing proficiencies using materials in the varied disciplines. 3 units.

Humanities (Hum) – AH

1 **Art, The Individual, and Society.** A study of visual arts and music as products of the creative imagination in dynamic interaction with society. 3 units.

Literature (Lit) – AH

1 **Literatures of the Philippines.** Philippine Literature in Spanish written by Filipinos, English, Filipino, and in other regional languages are translated into English or Filipino.
3 **Literature, Society, and the Individual.** A study of various literary genres as the imaginative expression of the individual writer's experience and the society's values and ideals. 3 units.

Undergraduate Courses

Communication Arts (Comm Arts)

101 **Introduction to Communication Theory**. Nature of the communication process and contributions of other disciplines to knowledge about this process. Empirical situations that throw light on the problems of communicators in trying to communicate more effectively. 3 units.
102 **Introduction to the Study of Language.** Phonology, morphology and syntax of language, selected readings, survey of social, political and cultural contexts. 3 units.
103 **Introduction to the Psychology of Language.** Application of sociological and psychological principles in the use of language for public information campaign. Emphasis on socio-linguistic and psycho-linguistic principles and empirical findings relevant to the problems of communicating information to the public. 3 units.
104 **Communication and Socio-cultural Change.** Communication media, theories and techniques in affecting social and cultural change. 3 units.
105 **Introduction to Film.** Development of film with emphasis on basic production techniques, analysis of film as an informational and education medium. 3 units.
106 **Principles of Public Relations and Advertising.** The major branches of organizational public relations work with emphasis on the principles and methods of dissemination and interpretation of information. Role of advertising in society, marketing and communication. 3 units.
107 **Law on the Media.** Principles underlying freedom of the press, statutes dealing with the media and their operation. 3 units. Prerequisite: Senior Standing.
108 **Internship/Apprenticeship/ Directed Activities.** Internship/ apprenticeship/directed activities in English, speech, print media and theater arts. 3 units. Prerequisite: Senior Standing.
109 **Research in Communication.** The nature, functions, principles and methods of communication research; application of quantitative methods in the major areas of communication arts, analysis and writing up of research proposal on a special problem. 3 units. Prerequisite: Senior Standing.

Development Communication (Dev Comm)

1 **Introduction to Development Communication.** Communication theory and analytical survey of the communication media for development. 3 units Prerequisite: Advanced Sophomore Standing.

2 **Fundamentals of Development Journalism.** Principles of gathering and writing of developmental news and information with emphasis on news recognition and accuracy. 3 units. Prerequisite: Dev Comm 1 or consent.

3 **Fundamentals of Community Broadcasting.** Principles of oral communication through the broadcast media; concepts of community broadcasting; introduction to station management and practices, program planning and production. 3 units. Prerequisite: Dev Comm 1 or consent.

4 **Fundamentals of Audiovisual Communication.** Theoretical overview of audio-visual communication; practice in planning and design of simple audio-visual aids. 3 units. Prerequisite: Dev Comm 1 or consent.

5 **Communication and Society.** The role of communication in society with special reference to the Asian situation; rights and responsibilities of the communication media. 3 units. Prerequisite: Dev Comm 1 or consent.

6 **Communication Internship.** Supervised work experience in development communication in press, publication, broadcasting and audio-visual offices. 3 units (1 lec, 6 lab). Prerequisite: Consent.

62 **Broadcast Speech and Performance of Community Radio.** Announcing, voicing, recording and directing techniques for community radio programs. 3 units (2 lec, 3 lab). Prerequisite: Dev Comm 1 or consent.

160 **Communication Campaigns and Programs.** Planning and evaluation of educational and promotional campaigns and programs. 3 units. Prerequisite: Consent.

161 **Testing and Evaluation of Communication Materials.** Methods of testing and evaluating print, broadcast, audio-visual communication materials; audience studies. 3 units Prerequisite: Dev Comm 6

163 **Publications Writing and Editing.** Preparation and processing of extension and other informational publications, including the mechanics of layout, copy reading, copy fitting and the use of illustrations. 3 units. Prerequisite: Consent

164 **Management and Production of a Community Newspaper.** Theory and practice of managing and producing a community newspaper. 3 units. Prerequisite: Consent

166 **Visual Design and Techniques.** Art principles and techniques in print and visual communication; layout, composition and visualization; the artistic use of color. 3 units (1 lec, 6 lab). Prerequisite: Consent

196a **Introduction to Communication Research.** Principles and techniques of communication research in relation to social change and development. 3 units. Prerequisite: Stat 1

196b **Undergraduate Research in Development Communication.** 3 units. Prerequisite: Dev Comm 196a

English (Eng)

A **Fundamentals of English I**. Grammar and selected communication skills. 3 units

B **Fundamentals of English II.** Reading and writing skills. 3 units

I **Freshman English**. The development of proficiency in the whole exercise of language, with particular emphasis on reading and writing skills and using materials in both the specific and humanistic disciplines.
3 units

II **Freshman English** (Continuation of English I) The development of more advanced language skills of interpretation, criticism and writing with reasonable competence in the longer expository forms such as essay, the scientific report and the research paper. 3 units.

III **Introduction to Literature.** The study of literary types: fiction, poetry, drama, essay, and biography. Skills in communication continue to be developed through discussions,reports, and papers. Readings to include English selections by Filipino and other Asian writers. 3 units. Prerequisite: English II

4 **Masterpieces in World Literature**. The great literary world masterpieces representing the Asian, European and American traditions; the analysis of ideas and forms. 3 units. Prerequisite: English III

5 **Expository Writing.** The development of lucid and effective expository style through a direct analytical study of the prose writing in the informal, literary formal, and scientific styles of great thinkers. 3 units. Prerequisite: Eng II

10 **Writing of Scientific Papers.** Principles underlying the preparation and writing of scientific papers. 3 units. Prerequisite: English II.

11 **Tehcnical Writing for Business.** Theory and practice in the writing of business communications, with emphasis on effective form and language in business correspondence and technical reports, such as industry studies, project feasibility studies, marketing plans, etc. 3 units.

Filipino (Fil)

10 **Pag-uusap.** Pagbibigay ng iba't ibang gamiting pangungusap para sa iba't ibang pagkakataon. 3 units

11 **Pagtatalakay.** Pagtatalakay ng iba't ibang gawi at ugali ng mga Pilipino. Paghahambing ng mga ito sa isa't isa. 3 units. Prerequisite: Filipino 10.

12 **Pagbasa at Pagsulat.** Pagpapaunlad ng kasanayan sa pagbasa at pagsulat sa Filipino. 3 units. Prerequisite: Consent

13 **Pagbasa at Pagsulat.** Karugtong ng Filipino 12. 3 units.

20 **Panimula sa Literatura.** Iba't ibang anyo ng literature; mga diskasyon, report at sanaysay. 3 units. Prerequisite: Filipino 12 or consent

25 **Ideya at Estilo (Ideas and Style).** 3 units. Prerequisite: Filipino 12 or consent

Humanities (Hum)

51 **Musical Elements and Rhetoric.** The materials of music literature as an aid to understanding the literature. 3 units. Prerequisite: Hum I or consent

52 **The Vocabulary and Techniques of Polyphony.** Introduction to the essential tonal techniques of polyphony through a general and non-technical approach. 3 units. Prerequisite: Hum 51 or consent

100 **History of the Visual Arts from Their Beginning to High Renaissance.** 3 units. Prerequisite: Hum I

104 **History of the visual arts of China, Japan and India.** 3 units. Prerequisite: Hum I

105 **Musical Form**. The Principles of musical organization in diverse musical forms, in various performance media and historical styles. 3 units. Prerequisite: Hum 51 and 52 or consent

110 **The Classical Tradition in Visual Arts.** Classic Greek art and the phenomenon of classicism as a vital stylistic resource for succeeding art periods outside of Greece. 3 units. Prerequisite: Hum I or consent

130 **Spirit of the Renaissance in the Visual Arts.** European Renaissance art, its modifications and manifestations in later period outside Europe, particularly in Philippine arts. 3 units. Prerequisite: Hum I or consent

170 **The Filipino Spirit in the Visual Arts.** The continuity and diversity of Philippine art as shaped by native, Islamic, Indian, Spanish, American and Modern European cultural forces. 3 units Prerequisite: Hum 104 or consent

195 **Visual Arts in Southeast Asia.** 3 units. Prerequisite: Hum I or consent

198 **Introduction to Aesthetics.** Theories of arts in western and eastern traditions. 3 units.

199 **Senior Seminar: Art Criticism and Connoisseurship.** 3 units. Prerequisite: Senior standing

Literature (Lit)

21a **A Survey of English Literature.** English literature from its beginning to the pre-Romantic period. 3 units. Prerequisite: English III.

21b **A Survey of English Literature.** English literature from the Romantic period to the 20th century. 3 units. Prerequisite: Eng 21a.

22 **Survey of Chinese Literature.** A critical survey of Chinese Literature in translation. 3 units. Prerequisite: 12 units English or consent.

23 **Japanese Literature**. A critical survey of Japanese literature in translation. 3 units. Prerequisite: 12 units of English or consent.

24 **Masterpieces of Asian Literature.** Representative poetry, fiction on, and drama of India, China and Japan, their interrelationships and their relations with other Asian literature. 3 units. Prerequisite: 12 units of English or consent

115 **Masterpieces of World Drama.** Readings and analysis of dramatic masterpieces of the world. 3 units. Prerequisite: Consent.

120 **Contemporary World Poetry and Fiction.** A study of significant English, American and Philippine poets and fiction writers. Literary and philosophical movements as they influence poetry and fiction. 3 units. Prerequisite: Consent

122 **Introduction to Third World Literature.** A critical survey of Afro-Asian and Latin American poetry, fiction, and drama. 3 units. Prerequisite: Consent.

125a and 125b **Philippine Literature.** A critical survey of Philippine Literature from the pre-Spanish period to the present in English and in vernacular. 3 units. Prerequisite: Consent.

127 **Mythology and Folk Literature.** A study of the popular myth and folk literature and .the mythological motifs recurring in ancient and contemporary literature. 3 units. Prerequisite: Consent

128 **Selected Topics.** A seminar on literature with emphasis on a broad perspective regarding the role of literature in culture and society. 3 units. Prerequisite: Consent.

156 **Dramatic Writing.** The one-act play and other dramatic forms; the techniques of writing for the stage. 3 units. Prerequisite: 12 units of English or consent.

Physical Education (PE)

1 F**oundation of Physical Fitness**. A course required of all freshmen for one semester, to acquaint them of the benefits derived from regular physical activities as well as to enable them to design their own personal fitness program. 2 units.

2 **Elective Physical Education Activities for Beginners.** Choice of: Basketball, Baseball, Football, Softball, Volleyball, Badminton, Deck Tennis, Lawn Tennis, Table Tennis, Sipa, Archery, Bowling, Gymnastics, Track and Field, Swimming, Beginner's Ballet, Popular Ballroom Dance, International Folk Dance, Philippine Folk Dance, Hawaiian Dance, Tahitian, Adapted Physical Education. 2 units.

Spanish (Span)

I **Elementary Course.** This course provides intensive practice in conversational Spanish on an elementary level. The work consists entirely of the oral aspects of language study; pronunciation, vocabulary building, reading aloud, comprehension of the spoken language, and conversation. Functional grammar is given to the students to serve as guide in the formation of correct speech habits. 3 units.

II **Elementary Course.** A continuation of Spanish I. The essentials of grammar, with special emphasis on idioms, are treated in this course. Emphasis is placed on intonation, pronunciation, vocabulary building and conversation. 3 units.

3 **Intermediate Spanish.** Emphasis on the subjunctives; reading, dictation, translation, conversation, composition and letter writing. 3 units. Prerequisite: Span I and II.

20 **Readings in Spanish.** Selected writings by Filipinos in their original Spanish versions. 3 units. Prerequisite: Spanish 3.

Speech

I **Fundamentals of Speech**. Understanding of the basic principles of speech and voice production and proficiency in their use. Speech skills common to all forms of oral communication, the selection and evaluation of materials for speech; organization; thought; voice; action; and speaker-listener relationship. 3 units.

111 **Elements of Voice and Diction.** Development of good habits of speech through group and individual guidance, criticism and practice on voice, articulation, and pronunciation. A preparation for effective social and professional use of the voice as in teaching, public speaking, theatre, radio, television and interpretation. Attention to students' speech problems arising from their various Philippine linguistic backgrounds. 3 units. Prerequisite: Speech I

115 **Bases of Speech**. The acoustic, physiological, phonetic and psychological foundations of verbal communication. 3 units. Prerequisite: Speech I or consent

121 **Oral Interpretation.** The reading of prose and poetry with emphasis on variety, range, and expression; the development of adequate responsiveness - intellectual and emotional appreciation to others. 3 units. Prerequisite: Speech I and Eng III

122 **Interpretation of Children's Literature.** The history and types of children's literature and children's story interests at each age level. Experience in story telling and in the oral interpretation of literature for children. 3 units. Prerequisite: Speech I and Eng III.

133 **Argumentation.** Principles of argumentation – analysis, evidence, reasoning, fallacies, and briefing, with application in public speaking, discussion and debate. Development of capacity to reply extemporaneously to objections. Practice in argumentative composition and delivery. 3 units. Prerequisite: Speech 1 and Eng III

136 **Forms of Public Address.** The more important forms of public address and the occasions which give rise to them; study of special methods by which speech is made clear, interesting and forceful. Readings and reports on Philippine public address. 3 units. Prerequisite: Speech I and Eng III

137 **Group Discussion and Conference Leadership.** Procedures in exchanging information, solving problems, determining policies, resolving differences in small face-to-face groups, and developing, insights into the nature of group processes. 3 units. Prerequisite: Speech 1 and Eng III.

142 **Playwriting.** The principles of dramatic composition taught through practice. Development of plots and character; the writing of a play scenario and a one-act play. 3 units. Prerequisite: 12 units of English

162 **Radio Writing**. Techniques and styles of writing for radio. Preparation of radio news, non-dramatic continuity, radio drama, and documentary, children's and educational programs. Individual instruction with detailed criticisms from instructor. 3 units. Prerequisite: 12 units of English and Speech 160.

163 **Radio Speech**. Fundamentals of microphone technique; practice in speaking, acting and announcing for the broadcast media. Basic training in planning and writing of radio and television talks. Voice recording for critical analysis. 3 units. Prerequisites: Speech I and Eng III.

164 **Programming.** Theory and practice of broadcast programming. Study of audience, market and rating surveys as they affect programming policies. Practice in building daily program schedule and individual program ideas. Criticisms of commercial programming. 3 units. Prerequisite: 9 units of radio courses or consent

183 **Audio-visual Communication.** The selection and use of audio-visual materials for communication situations. Attention to models, maps, charts, radio and television programs, recordings, flat pictures, slides, filmstrips and motion pictures. Projects in speaking with the use of audio-visual materials. 3 units. Prerequisite: 12 units of Speech or consent.

Theater Arts

101 **History of the Theater.** History and development of drama from the classical Greek period to the present. 3 units. Prerequisite: Eng III

102 **World Drama I.** A study of the dramatic masterpiece of the world. 3 units. Prerequisite: Theater Arts 101

103 **World Drama II.** 3 units. Prerequisite: World Drama I

104 **Contemporary Drama.** The modern drama from Ibsen to Beckett. 3 units. Prerequisite. Theater Arts 102

105 **Oriental Drama.** A study of the dramatic masterpieces of the Orient, theatrical architecture, stagecraft, scenery, costume, lighting, etc. 3 units. Prerequisite: Consent

106 **Philippine Drama.** A survey of Philippine drama from the Pre-Spanish period to the present. 3 units. Prerequisite: Consent

107 **Theater Communication.** The various qualities of the visual sense and how communication can be improved with the use of visual symbols; the nature, function, operation and role of the theater in modern society. 3 units. Prerequisite: Consent.

108 **Theater Communication.** Acting. Basic mechanics of acting. Exercises for improving the imagination, body movement, voice. 3 units. Prerequisite: Consent.

109 **Directing.** Principles of directing. Qualifications of a director, choosing a play, casting, reading, blocking, rehearsal, producing, and staging the play. Several plays to be directed and noted by the class/ students at the end of the semester. 3 units. Prerequisite: Consent.

110 **Stagecraft.** Training on the basic aspects of stagecraft, general principles and practice in planning, constructing, painting and mounting stage sets; also familiarization with the schemes of theater organization. 3 units. Prerequisite: Consent.

111; 112 **PLAY PRODUCTION I; II**. A practical approach to the problems in presenting a play, with special emphasis on actual production. 3 units (1 lec, 6 lab). Prerequisite: Theater Arts 110

DIVISION OF NATURAL SCIENCES AND MATHEMATICS

General Education Courses

Aquatic Science (Aqua Sci) – MST

1 **Fish Makes Sense.** The dynamic interaction between man and the aquatic environment: major fisheries concepts, issues, and developments.

Biology (Bio) - MST

1 **Understanding Life.** Major biological concepts and current issues in evolution, plant and animal reproduction and development, genetics, human health and ecology. 3 units.

20 **Living with Microbes in Sickness and in Health.** The beneficial and harmful effects of microbes to humans, the historical landmarks and modern developments in microbiology. 3 units

Environmental Science (Envi Sci) - MST

10 **People and Environment**. Study of the environment, current problems and suitable options. 3 units.

Mathematics (Math) – MST

1 **Mathematics for General Education.** A survey of the essential concepts and applications of mathematics from a historical perspective. 3 units.

Natural Science (Nat Sci) – MST

1 **Foundations of Natural Sciences 1** Fundamental concepts, principles and theories of physics and chemistry. 3 units.

2 **Foundations of Natural Sciences 2.** Fundamental concepts, principles and theories of earth and life sciences. 3 units.

SCIENCE, TECHNOLOGY AND SOCIETY (STS) – MST

40 **SCIENCE, TECHNOLOGY AND SOCIETY.** The analysis from historical and futuristic perspectives of the nature and role of science and technology in society and of socio-cultural and politico-economic factors affecting the development of science and technology with emphasis on Philippine setting. 3 units.

Undergraduate Courses

Biology (Bio)

100 **Biotechnique.** Collection and preparation of plant and animal materials for microscopic study, museum methods; scientific illustration. 3 units (1 lec, 6 lab). Prerequisite: Bot 10, Zoo 10 and consent

120 **General Microbiology.** Taxonomy, morphology, ecology, and economic value of microorganisms; microbiological techniques. 3 units. (3 hrs lect) Prerequisites: Bot 10, Zoo 10 and Organic Chemistry.

120.1 **General Microbiology Laboratory.** 2 units. (6 lab) Prerequisite: Must be accompanied or preceded by Bio 120.

140 **Elementary Genetics.** Principles of heredity and variation. 3 units. Prerequisites: Bot 10 or Zoo 10, Chem 40 and Bio 101.

140.1 **Elementary Genetics Laboratory.** 1 unit. (3 lab). Must be preceded or accompanied by Bio 140.

150 **Introduction to Molecular and Cell Biology.** 3 units. Prerequisite: Chem 40 or consent.

151 **Environmental Management**. Principles of environmental management; technological development and activities affecting the environment and pertinent case studies. 3 units. Prerequisite: Bio 150 or COI

152 **Principles of Molecular Biology and Biotechnology.** Principles of molecular biology and its application in biotechnology. 4 units. (3 lec, 3 lab) Prerequisite: Chem 40, Bio 150.

160 **Ecology and Field Biology.** Principles of ecology and their application to field studies relating to natural resource management. 3 units. Prerequisite: Taxonomy course.

160.1 **Ecology and Field Biology Laboratory.** 2 units (6 lab) Prerequisite: Must be accompanied or preceded by Bio 160.

180 **Statistical Methods in Biology.** 3 units (2 lec, 3 lab). Prerequisite: Math 11 or equivalent.

189 **Technical Writing in Biology.** Preparation and writing of scientific papers including papers for oral presentation as well as ethics, rights and permission. 3 units. Prerequisite: Senior Standing.

195 **Biological Evolution.** Theories, principles and mechanisms of evolution. 3 units. Prerequisite: Bio 140.

196 **SEMINAR IN BIOLOGY.** 1 unit (may be repeated for an additional 1 unit). Prerequisite: Senior Standing.

199 **Research in Biology.** 3 units. Prerequisite: Senior Standing

Botany (Bot)

10 **General Botany.** A survey of the structure, function, classification, heredity and evolution of plants. 5 units. (3 lec, 6 lab)

111 **Plant Morphoanatomy and Diversity Lecture.** Developmental patterns, morphoanatomy, evolution and taxonomy of Kingdom Plantae. 3 units. Prerequisite: Bot 10 or equivalent.

111.1 **Plant Morphoanatomy and Diversity Laboratory.** 2 units (6 lab). Prerequisite: Bot 10 or equivalent

109 **Taxonomy of Higher Plants.** The Principal families of Angiosperms. Special emphasis on the technique of collection, identification and preparation of illustrative materials for the herbarium. 5 units. (3 hrs lect, 6 hrs. lab) Prerequisite: Bot 10.

121 **Elementary Plant Physiology.** Lectures and laboratory dealing with the fundamental aspects of the activities of plants, such as plant nutrition, absorption and translocation of materials, growth movement and reproduction. 5 units (3 lec, 6 lab). Prerequisite: Bot 10 or equivalent and Chem 40.

182 **Economic Botany.** Economic plants and plant products. 3 units. Prerequisite: Bot 10.

Chemistry (Chem)

10 **Essentials of General Chemistry.** 4 units (3 lec, 3 lab). Prerequisite: Math 11 or equivalent.

14 **Elementary Inorganic and Organic Chemistry.** Certain fundamental principles and the more important applications of inorganic and organic chemistry for the biological field, both pure and applied. 5 units (3 lec, 6 lab). Prerequisite: Math 11 or equivalent.

16 **General Chemistry I.** Fundamentals of Chemistry. 5 units (3 lec, 6 lab) Prerequisite: Math 11 or its equivalent.

17 **General Chemistry II.** Continuation of Chemistry 16. 5 units (3 lec, 6 lab) Prerequisite: Chem 16 and Math 14 or equivalent.

18 **General and Inorganic Chemistry.** The fundamental principles of chemistry and brief survey of the common elements and the practical applications of chemical principles to industry. 3 units. Prerequisite: Math 11 or equivalent.

19 **General and Inorganic Chemistry.** Continuation of Chemistry. 4 units (2 lec, 6 lab).

26 **Analytical Chemistry.** Principles and techniques of analysis with emphasis on volumetric methods and stoichiometry; survey of common instrumental methods. 3 units. Prerequisite: Chem 11 and Math 14 or equivalent.

26.1 **Analytical Chemistry Laboratory**. 2 units. Prerequisite or corequisite: Chem 26

28 **Quantitative Inorganic Analysis.** Principles and techniques of gravimetric and volumetric methods; colorimetric and potentiometric methods. Stoichiometry. Analysis of substances and simple mixtures. 3 units. Prerequisite: Chem 17.

28.1 **Quantitative Inorganic Analysis Laboratory.** 2 units. (6 lab) Prerequisite: To be accompanied or preceded by Chem 28.

31 **Elementary Organic Chemistry.** Introduction to modern theories in organic chemistry. Correlation of structure with properties of organic compounds. Basic laboratory techniques in elementary organic chemistry. 3 units. Prerequisite: Chem 11 or 18 or 19.

31.1 **Elementary Organic Chemistry Laboratory.** 2 units. Prerequisite: To be accompanied or preceded by Chem 31.

40 **Elementary Biochemistry.** A brief survey of the chemistry of food and nutrition. 3 units. Prerequisite: Chem 14.

40.1 **Elementary Biochemistry Laboratory.** 2 units (6 lab). Prerequisite: To be accompanied or preceded by Chem 40.

Computer Science (CMSC)

11 **Introduction to Computer Science.** Introduction to the major areas of computer science; software systems and methodology; computer theory; computer organization and architecture. Students learn to write programs using a high-level block- structured programming language. 3 units (2 lec. 3 lab) Corequisite: Math 17.

21 **Fundamentals of Programming.** Expansion and development of material introduced in CMSC 11. Processing of files and linked-lists; Programming in the C language; Recursion; Systematic program development; Top-down design and program verification. 3 units (2 lec, 3 lab). Prerequisite: CMSC 11.

22 **Fundamentals of Object-Oriented Programming.** Introduction to object-oriented programming; classes; inheritance; polymorphism; and exception handling. Design and implementation of object-oriented programs. API programming. 3 units (2 lec, 3 lab). Prerequisite: CMSC 21

55 **Discrete Mathematical Structures in Computer Science.** Principles of logic and set theory, combinatorics, discrete probability, recurrence relations, graph theory, algebraic systems and their application in computer science. 5 units Prerequisite: Math 11 and 14/Math 17.

56 **Discrete Mathematical Structures in Computer Science 1.** Principles of logic, set theory, relations and functions, Boolean algebra and linear algebra. 3 units. Prerequisite: CMSC 11 and Math 17

57 **Discrete Mathematical Structures in Computer Science 2.** Principles of combinatorics, probability, algebraic systems, numerical methods, operations research and graph theory. 3 units. Prerequisite: CMSC 56

121 **Internet Technologies.** Programmer- oriented introduction to current internet technologies, web authoring and internet security. Design and development of web applications using modern Internet tools. 3 units (2 lec, 3 lab) Prerequisite: CMSC 22.

123 **Data Structures.** Abstract data types and their implementations; lists, stacks, queues, trees, mappings, sets and graphs; searching and sorting techniques, dynamic storage management. 3 units. Prerequisite: CMSC 21 and CMSC 57.

124 **Automata and Language Theory.** Finite automata and regular languages; push-down automata and context-free languages; Turing machine and recursively enumerable sets; linear-bounded automata and context-free languages; computability and halting problem; undecidable problems; recursive functions; and computational complexity. 3 units. Prerequisite: CMSC 57.

125 **Operating Systems.** Processor management, memory management, file and disk management, resource management, networks and distributed systems. 3 units. (2 lec, 3 lab) Prerequisite: CMSC 123 and 131.

127 **File Processing and Database Systems.** Data models; relational, network, hierarchical models. Database management system, data definition and manipulation language. Data security, integrity, synchronization, protection and recovery. Principal database systems and query languages. 3 units (2 lec, 3 lab) Prerequisite: CMSC 123.

128 **Introduction to Software Engineering.** Software life cycle from the requirement specification and design phases through the construction of actual software. Topics include planning a software project, cost estimation, software design, implementation, validation and software maintenance. 3 units. (2 lec, 3 lab). Prerequisite: CMSC 123.

130 **Logic Design and Digital Computer Circuits.** Data representation and computer arithmetic; logic functions and equations; description, analysis and design of combinatorial and sequential circuits; functional properties of digital integrated circuits. 3 units (2 lec, 3 lab) Prerequisite: CMSC 11.

131 **Introduction to Computer Organization and Machine Level Programming.** An introduction to computer organization and interfaces between hardware and software. Microcomputer systems; basic computer organization, interfacing, interrupt mechanisms. Assembly language programming: machine vs. assembly vs. high-level language, data structure representations, program control implementations, subroutines, parameter passing, recursion, direct video graphics, serial port communications. 3 units (2 lec, 3 lab). Prerequisite: CMSC 21 and CMSC 130.

132 **Computer Architecture.** Advanced topics in computer systems organization from a designer's point of view; multiprocessing, pipelining, array processors, associative processors; microprogramming, techniques for increasing primary memory bandwidths; modularization, interleaving, access path widening, cache and associative memories; virtual memory; bus structures; multiprogramming and time-sharing organizations; network principles and protocols, distributed resources. 3 units. Prerequisite: CMSC 131.

135 **Data Communication and Networking.** Basic principles in data communications and networking; reference models and network layers: design issues, network principles and protocols; distributed computing and distributed resources; overview of networking and communication software; network cabling; network security. 3 units (2 lec, 3 lab). Prerequisite: CMSC 125

140 **Advanced Programming.** Intermediate programming PL/1 procedures; block structures; ON conditions; recursion; introduction to data structures and program analysis. 3 units (2 lec, 3 lab) Prerequisite: CMSC 21 and 57.

141 **Design and Implementation of Programming Languages.** Study of the fundamental concepts in the design and implementation of the current high-level programming languages; syntax and translation; language definition structures, elementary and structured data types, abstraction mechanisms, sequence and data control, runtime considerations. 3 units (2 lec 3 lab) Prerequisite: CMSC 123.

142 **Design and Analysis of Algorithms.** Algorithm design techniques; use of data structures, divide and conquer, local and global search. Complexity analysis of algorithms; asymptotic analysis, worst case analysis and averaged case analysis, recurrences, lower bounds, NP-completeness. 3 units. Prerequisite: CMSC 123.

151 **System Analysis and Design.** Systems analysis and design; concepts, philosophies , trends, tools and techniques. Systems development life cycle; structured methodologies; data flow diagrams; entity-relationship diagrams; relational analysis; other design methodologies. 3 units. Prerequisite: CMSC 128.

152 **Management Information Systems (MIS).** Fundamental principles of management; information management; general systems model and approach; data processing systems. The MIS approach: executive; marketing; manufacturing; financial and human resource information systems. 3 units. Prerequisite: CMSC 128.

153 **Accounting and Information Systems (AIS).** Fundamental principles of accounting; programming of accounting modules: general ledger, journal ledger, transaction ledger, accounts receivable, accounts payable, etc. 3 units (2 lec, 3 lab). Prerequisite: CMSC 21.

161 **Interactive Computer Graphics.** Graphics system software and hardware, 2D drawing algorithms, geometrical transformations, surface modeling. 3D viewing, visible surface determination algorithms, illumination and reflection models, shading models for polygons, color theory, ray tracing. Student write their 3D rendering engine. 3 units. (2 lec, 3 lab). Prerequisite: CMSC 57 and CMSC 123.

170 **Introduction to Artificial Intelligence.** Fundamental principles of artificial intelligence. Search methods. Knowledge representation and reasoning. Agents. Machine learning and neural networks. Current research applications. 3 units. Prerequisite: CMSC 123.

171 **Expert Systems and Knowledge Engineering.** Expert system shells and architectures; knowledge representation languages; uncertainty handling; techniques of knowledge elicitation and acquisition; rule-based expert systems; knowledge organization and management. 3 units. (2 lec, 3 lab). Prerequisite: CMSC 123

172 **Computing with Symbolic Expressions.** Basic discrete mathematics, sets, functions, and predicates. Functional programming in LISP or PROLOG: function and declarative programming; atoms and lists; list processing by recursive functions; mapping functions; local function binding; data abstraction and evaluation. 3 units. Prerequisite: CMSC 123.

180 **Computer Simulation and Modeling**. Algorithms and packages for standard graphics; advanced 2-D and 3-D rendering techniques; realism; visualization of scientific data. Use of statistical tools and techniques, knowledge in expert systems and artificial intelligence for data representation and analysis. Problems in other disciplines of science will be chosen as examples to be used for modeling and simulation. 3 units (2 lec, 3 lab). Prerequisite: CMSC 123

196 **Undergraduate Seminar.** 1 unit. Prerequisite: COI. May be taken twice.

197 **Special Topics.** Lecture course in topics of current interest, such as data communications, parallel computation, artificial intelligence, neural networks. 3 units. Prerequisite: COI. It can be taken twice provided that the total number of units to be credited to the student's program will not exceed 4 units.

198 **Practicum.** 3 units. Prerequisite: COI.

198.1 **Special Problem 1.** Research project proposal; design and development of a prototype. 3 units. Prerequisite: Senior Standing

182.2 **Special Problem 2.** Research project development. 3 units. Prerequisite: CMSC 198.1

Geology (Geol)

11 **Principles of Geology.** Earth materials; nature and consequences of geologic processes. 3 units.

Mathematics (Math)

11 **College Algebra.** Linear Equations; algebraic and graphical solutions of the quadratic equations; exponents and radicals; complex numbers; binomial expansion; determinants; progressions; theory of equations. 3 units. Prerequisite: One year of high school algebra.

14 **Plane Trigonometry.** Logarithms; graphs of the trigonometric function; the general triangle; solutions of trigonometric; inverse trigonometric; exponential and logarithmic equations; complex numbers. 3 units. Prerequisite: One year of high school algebra and plane trigonometry.

17 **Algebra and Trigonometry.** Sets and numbers; the algebra of numbers as a logical system; inequalities; absolute values and coordinate systems; functions and graphs; circular, linear, quadratic and polynomial functions; exponential and logarithmic functions; applications of the circular functions to angles. 5 units. Prerequisite: One year of high school algebra.

53 **Elementary Analysis I.** Functions and their graphs; concepts of limit and continuity; theory of differentiation; derivatives of algebraic and trigonometric functions; theory of integrals; applications of the definite integrals. 5 units. Prerequisite: Math 17 or equivalent.

54 **Elementary Analysis II.** Integration methods; determinants; plane and solid analytics; hyperbolic functions; polar coordinates; vectors; parametric equations. 5 units. Prerequisite: Math 53.

55 **Elementary Analysis III.** Partial differentiation; multiple integrals; finite series; differential equations. 3 units. Prerequisite: Math 54.

100 **Introduction to Calculus.** Limits; derivatives; integrals; applications. 4 units. Prerequisite: Math 17 or consent.

101 **Elementary Statistics.** Presentation of data; frequency distribution; central tendencies; index numbers; dispersion; normal curve; Poisson curve; correlations; sampling distribution; elements of statistical inference. 3 units. Prerequisite: Math 17 or Math 11.

114 **Linear Algebra.** Vector spaces; linear transformation and matrices; eigen values; canonical forms; applications. 3 units. Prerequisite: Math 131 or consent.

121.1 **Elementary Differential Equations.** Ordinary differential equations. Total differential equations. Partial differential equations of the first and second orders. 3 units. Prerequisite: Math 55 or may be taken simultaneously with Math 55.

127 **Vector Analysis**. Vector algebra and calculus. Invariants. Green's theorem. Stoke's theorem. Gauss' theorem. Applications to geometry and physics. 3 units. Prerequisite: Math 55

140 **Graph Theory.** Relations, relegraphs and their fundamental concepts, network theory, trees and forests, tournament, planar graphs, K-colorable graphs. 3 units. Prerequisite: Junior standing.

152 **Introduction to Computer Software Applications.** Hands-on experience on the use of different application softwares. 3 units. Prerequisite: COI.

173 **Numerical Methods I.** Numerical methods for solving roots of single equations, systems of equation, ordinary differential equations and partial differential equations. 3 units. Prerequisite: Math 155 and Math 114.

174 **Numerical Methods II.** Development of algorithms and programs for numerical integration and differentiation, linear and nonlinear equations, ordinary differential equations. 3 units (2 lec, 3 lab). Prerequisite: Math 153 and Math 173.

183 **Operations Research I.** Origins and nature of equations research, linear programming, network analysis including PERT-CPM, dynamic programming. 3 units. Prerequisite: Math 114.

184 **Operations Research II**. Special topics in operations research. 3 units. Prerequisite: Math 183.

197 **Special Topics in Mathematics.** 3 units. Prerequisite: Junior Standing.

Microbiology (MCB)

101 **Advanced Microbiology**. Principles and techniques for the morphological, cultural and physiological characterization of selected groups of microorganisms. 3 units. Prerequisite: MCB 1

120 **Microbial Physiology.** Physiological processes in microorganisms including a study of structure, energy production, macromolecular biosynthesis, and nutrition growth. 3 units. Prerequisites: MCB 1 and Chem 160.

PHYSICS

51 **General Physics I.** Introduction to mechanics, waves, sound and thermodynamics. 3 units. Prerequisite: Math 17 or equivalent.

51.1 **General Physics I Laboratory.** 1 unit. (2 lab) Corequisite: Physics 51

52 **General Physics II.** Introduction to electromagnetism, optics and modern physics. 3 units. Prerequisite: Physics 51.

52.1 **General Physics II Laboratory.** 1 unit (2 lab). Corequisite: Physics 52

Statistics (Stat)

105 **Introduction to Statistical Analysis.** Organization and presentation of data; probability functions; random variables; elements of statistical inference; analysis of variance. 3 units. (2 lec, 3 lab) Prerequisite: Math 17.

106 **Advanced Statistical Analysis.** Regression and correlation analysis; non-parametric methods; experimental design; time series analysis. 3 units (2 lec, 3 lab). Prerequisite: Stat 105.

Zoology (Zoo)

10 **Fundamentals of Zoology.** Basic aspects and principles of zoology. 5 units. (3 lec, 6 lab)

102 **Comparative Anatomy of Vertebrates.** Phylogenetic development of the organ systems in the various classes of vertebrates. 3 units. Prerequisite: Zoo 10

102.1 **Comparative Anatomy of Vertebrates Laboratory.** 2 units (6 lab). Must be accompanied or preceded by Zoo 102.

111 **Invertebrate Zoology.** General survey of the invertebrates. 3 units. Prerequisite: Zoo 10

111.1 **Invertebrate Zoology Laboratory.** 2 units (6 lab). Prerequisite: Zoo 10.

113 **Parasitology.** Origin and degree of parasitism, structural peculiarities of parasites, life cycles and host- parasite relationship. 5 units. (3 lec, 6 lab). Prerequisite: Zoo 102 and 111

115 **Medical Entomology.** Insects and their role in transmission of epidemic diseases of man and other animals**.** 5 units. (3 lec, 6 lab). Prerequisite: Zoo 10

120 **Animal Physiology.** Principles of functional zoology with emphasis on physiological adaptations. 3 units. Prerequisite: Senior standing or consent.

120.1 **Animal Physiology Laboratory.** 2 units (6 lab). Prerequisite: Zoo 120

128 **Malacology.** The study of mollusks, their classification and morphology, with emphasis on the economically and medically important forms. Aquaculture and control of mollusks also included. 5 units (3 lec, 6 lab). Prerequisite: Zoo 10.

131 **Introduction to Developmental Biology of Animals.** Principles of development, mechanisms of cellular differentiation, specifications of cell fate and embryonic axes, as well as cellular interactions during organogenesis. 3 units. Prerequisite: Zoo 102 and Bio 150.

131.1 **Introduction to Developmental Biology of Animals Laboratory.** 2 units (6 lab). Prerequisite: Must be accompanied or preceded by Zoo 131.

132 **Vertebrate Embryology.** Processes and theories of development of representative vertebrates. 5 units (3 lec, 6 lab). Prerequisite: Zoo 102

DIVISION OF SOCIAL SCIENCES

General Education Courses

History (Hist) – SSP

1 **Philippine History.** The political, economic, social and cultural development of the Philippines. 3 units.

2 **Asia and the World.** A study of Asian Cultural heritage in relation to civilization. 3 units.

Philosophy (Philo) – SSP

1 **Philosophical Analysis.** Application of basic concepts, skills, principles and knowledge drawn from Philosophy of Language, Symbolic Logic, Epistemology, Philosophy of Science and Ethics. 3 units.

Psychology (Psych) – SSP

10 **Looking at the Self Through Different Psychological Perspectives.** The functioning of the individual – his mind, feelings, capabilities, behavior and growth; the role of the environment and culture in shaping the individual. 3 units

Social Science (Soc Sci) – SSP

1 **Foundations of Behavioral Sciences.** A survey of basic concepts, principles, theories and methods of the behavioral sciences: (Sociology, Psychology, Anthropology, including the behavioral components of Linguistics, Demography and Geography) and the dynamics of social change. 3 units.

2 **Social, Economic and Political Thought.** A survey of social, economic, and political thinkers from the classical to contemporary times. 3 units.

5 **Understanding Gender.** Critical analysis of the key concepts, root causes, forms and dimensions of gender relations and their varied manifestations in selected societies. 3 units.

Undergraduate Courses

Economics (Econ)

11 **Introductory Economics.** Basic principles, economic institutions; the national economy in a development setting. 3 units. Prerequisite: Math 11 or Math 17.

101 **Macroeconomic Theory and Policy.** National income, employment, savings and investment; simple dynamic models. 3 units. Prerequisite: Econ 11or consent.

102 **Microeconomics.** Behavior of the consumer, the firm, the industry; allocation of resources. 3 units. Prerequisite: Econ 11or consent.

109 **History of Economic Doctrines.** Survey of the development of economic analysis and doctrines. 3 units. Prerequisite: Econ 101 or consent.

121 **Money and Banking.** Theory and policy problems concerning money, credit and financial institutions. 3 units. Prerequisite: Econ 101 or consent.

141 **International Trade.** International Trade and capital movements; survey of international economic institutions. 3 units. Prerequisite: Econ 101 or consent.

151 **Government Finance.** Government revenue expenditure and debt. 3 units. Prerequisite: Econ 101 or consent.

171 **Economics of Agricultures.** Problems and policies in the agricultural sector. 3 units. Prerequisite: Econ 102 or consent.

181 **Labor Economics.** Employment, productivity, and wages; industrial relations. 3 units. Prerequisite: Econ 102 or consent.

191 **Development Economics.** Theories and problems of growth and development survey of the experience in low-income and high-income countries. 3 units. Prerequisite: Econ 101 or consent.

198 **Special Topics in Economics.** 3 units. Prerequisite: Consent.

199 **Seminar.** 3 units. Prerequisite: Consent.

Philosophy (Philo)

11 **Logic.** Techniques of formal deduction within the scope of sentential and predicate logic. 3 units

160 **Philosophy of Science.** Nature of scientific inquiry; problems of demarcation, explanation, prediction, concept formation and validation. 3 units. Prerequisite: Senior standing and consent.

171 **Ethics.** Problems and theories of moral values. 3 units.

Philippine Institutions (PI)

100 **The Life and Works of Jose Rizal.** The significance of the life and writings of Rizal in the life of the Filipino people. 3 units. Prerequisite: Senior Standing.

Political Science (Pol Sci)

11 **Introduction to Political Science.** Concepts, theories, and principles of political science; types of political systems; development of political institutions and processes. 3 units.

14 **Philippine Government and Politics.** A course dealing with the organizations and workings of Philippine government and politics. 3 units.

101 **Introduction to Comparative Government and Politics.** Theoretical approaches in the study of comparative government and politics. 3 units. Prerequisites: Pol Sci 11 and 14

150 **Philippine National and Local Administration.** Principles, practices, and problems of public administration; historical, behavioral and institutional analysis and evaluation of the national and local bureaucracy and administration in the Philippines. 3 units. Prerequisites: Pol Sci 11 and 14

160 **Society, Politics and Government.** Society as the matrix of politics; political power and leadership; patterns of decision-making; political modernization and development. 3 units. Prerequisite: Pol Sci 11 or consent.

163 **Political Behavior: Processes and Movements.** Belief systems; nature and development of political processes and movements. 3 units. Prerequisite: Pol Sci 160 or consent.

170 **Comparative Western Politics.** Comparative study of political systems of UK, France, USSR, US and Switzerland. . 3 units. Prerequisite: Pol Sci 11 and 14.

171 **American Government and Politics.** Theory and dynamics of the government and politics of the United States. 3 units. Prerequisite: Pol Sci 11

172 **Government and Politics of Selected European States.** Political systems of the United Kingdom, France, Italy, East and West Germany and the Union of Soviet Socialist Republic. 3 units. Prerequisite: Pol Sci 11 and 14 or consent.

177 **Government and Politics of Asia I.** Political systems of Japan, the People's Republic of China, North Korea, Nationalist China and the Republic of South Korea. 3 units.

178 **Government and Politics of Asia II (SE Asia).** Political systems of Burma, Thailand, Laos, Cambodia, Vietnam, Malaysia, Singapore and Indonesia. 3 units. Prerequisites: Pol Sci 11 and 14 or consent.

180 **Philippine Foreign Policy.** Development of Philippine foreign policy; forces, techniques and problems in the formulation and implementation of Philippine foreign policy. 3 units. Prerequisites: Pol Sci 11 and 14.

182 **International Politics.** Interplay on political forces in the international system; national power, national interest and goals, and settlement of international disputes. 3 units. Prerequisite: Pol Sci 170.

192 **Ancient and Medieval Political Theory.** Political thoughts from Plato to Machiavelli. 3 units. Prerequisite: Senior Standing.

199 **Research in Political Science.** Approaches and methods of research in systematic politics. 3 units. Prerequisite: Junior Standing.

Psychology (Psych)

11 **Principles of Psychology.** Principles of the science of Psychology. 3 units.

101 **General Psychology.** The empirical and conceptual foundations of psychology in its main fields. Primarily for students who desire an intensive preparation for the more advanced courses in psychology. 3 units.

108 **Filipino Psychology.** 3 units. Prerequisite: Psych 101

110 **Psychological Statistics.** Statistical techniques in the design, analysis, and interpretation of psychological studies. 4 units. Prerequisite: Prerequisite: Psych 101and Math 101

115 **Experimental Psychology.** Principles of experimental inference; experimental design in behavioral research. 5 units (3 lec, 6 lab), Prerequisite: Psych 11 or 101 and 110

118 **Field Methods in Psychology**. The principles and practice of psychological research in natural environment**s** including systematic observation, unobtrusive measures, interviewing and field experiments. 3 units. Prerequisite: 6 units of Psychology courses.

135 **Perception**. Principles of perception in the major sense modalities; methods of investigation. 3 units. Prerequisite: Prerequisite: Psych 101

140 **Behavior Analysis.** Basic behavioral process in terms of experimental learning theory. 3 units. Prerequisite: Psych 11 or 101 or written consent

142 **Applied Psychology.** Application of psychological laws and principles to different life activities such as vacation and profession. 3 units. Prerequisite: Psych 101

145 **Psychology of Language.** 3 units. Prerequisite: Psych 140 or consent.

148 **Cognitive Psychology.** Information-processing approach to studying perception, attention, memory, language, representation, problem solving, reasoning, judgment and decision making. 3 units. Prerequisite: Psych 101

150 **Personality.** Systematic approaches to the understanding of personality formation and dynamics. 3 units. Prerequisite: Psych 11 or 101 or written consent.

155 **Abnormal Behavior.** 3 units. Prerequisite: Psych 140 or consent.

162 **Psychological Measurement.** Theories and methods in the development, evaluation, and utilization of psychological tests and measures. 4 units. Prerequisite: Psych 110

163 **The Psychological Interview.** 3 units. Prerequisite: Psych 150 or consent

171 **Child Psychology.** A systematic study of the behavior of normal children with emphasis on socialization and personality development. 3 units. Prerequisite: Psych 101

180 **Social Psychology.** Experimental investigation of group behavior; emotions, motivations and personality dynamics in social behavior; social learning and perception in small groups and in cultural contexts. 3 units. Prerequisites: Prerequisites: Psych 101

182 **Group Processes.** Theories and methods for comprehending, analyzing, using and evaluating basic processes in group interaction. 3 units. Prerequisite: consent

183 **Psychology of Interpersonal and Group Communication.** Communication as a focal variable permeating social psychological phenomena such as group structure, process and attitude change. 3 units. Prerequisite: Psych 101 and Psych 180, Comm 3.

185 **Industrial Psychology.** Application of the knowledge from the theories and methods of Psychology to practical human problems in organization, definition and measurement of performance, prediction of performance, facilitation of performance (training, etc.), remuneration of performance and the organizational and social context of work. 3 units. Prerequisite: Psych 101 and Psych 162

187 **Health Psychology.** Social psychological processes relevant to all aspects of health and illness across the lifespan including health promotion and maintenance; prevention and treatment of illness; and etiology and correlates of health, illness and dysfunction. 3 units. Prerequisite: Psych 180

195 **Special Topics in Psychology.** 3 units

199.1 **Research Methods in Psychology I.** Introduction to the various methods of research in psychology through directed research activities. 3 units. Prerequisite: Psych 110, Psych 115 and Senior Standing.

199.2 **Research Methods in Psychology II.** Conduct of psychology research project; data collection and analysis research results presentation; writing of psychology research projects. 3 units. Prerequisite: Psych 199.1 and Senior Standing.

Social Science (Soc Sci)

A **Personality and Social Development.** The psychological, social and cultural basis of personality formation with emphasis on socialization and the roles of institutions. 3 units (For the Forest Ranger Certificate)

100 **Current Issues in Philippine Social and Political Life.** An analysis of the main issues of contemporary Philippine social and political life, with special emphasis on the government and the constitution, land reform, taxation and population education. 3 units. Prerequisite: Senior Standing or consent.

105 **Gender Issues in Philippine Society.** 3 units. Prerequisite: Junior Standing

Sociology (Socio)

11 **Introductory Sociology.** The nature, scope and basic concepts of sociology as an approach to the study of society with particular application to Philippine conditions. 3 units.

101 **General Sociology.** Theoretical concerns of the fields of sociology and the various techniques in the study of social realities. 3 units. Prerequisite: Junior standing

102 **Social Organization.** Analysis of the main forms of social organization in simple and complex societies; principles of the integration and disintegration of social groups. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

114 **The Philippine Social System.** Analysis of the social structure of Philippine society. 3 units. Prerequisite: Socio 11 or 101 or consent.

122 **Rural Sociology.** Comparative studies of rural life. 3 units. Prerequisite: Socio 11 or 101 or equivalent

127 **Political Sociology.** Analysis of interaction of social structure and politics; sources of power, authority, legitimacy, and social change. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

140 **Socialization and Group Interaction.** Analysis of socialization as a process, social interaction in and between groups and aspects of collective behavior. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

145 **Collective Behavior**. Studies in mass behavior, social movements and political action. 3 units. Prerequisite: Socio 11 or 101 or equivalent

153 **Sociology of Development.** The nature and problems of the process of development. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

160 **Society and Population.** Description and analysis of population aggregates; world population growth, population problems, and theories; the interrelation of population and social structure. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

165 **Human Ecology.** Principles and methods of ecology applied to the study of the interaction of man-environment and technology. 3 units. Prerequisite: Socio 11 or 101 or equivalent.

199 **Methods of Sociological Research.** Survey of and introduction to various methods of sociological research. 3 units. Prerequisite: Socio 101 and 190 or senior standing and a course in statistics.

DIVISION OF MANAGEMENT

Undergraduate Courses

Business Administration (BA)

99.1 **Fundamental Accounting Theory and Practice I.** Fundamental accounting theory and terminology with reference to accounting practice and management's use of accounting data. 3 units. Prerequisite: Sophomore Standing.

99.2 **Fundamental Accounting Theory and Practice II.** Continuation of Fundamental Accounting Theory and Practice I. 3 units. Prerequisite: BA 99.1.

99.3 **Fundamental Accounting Theory and Practice III.** Application of basic accounting concepts and principles, with particular emphasis on bookkeeping and business accounting for managers. 3 units Prerequisite: BA 99.1

101 **Introduction to Management.** Principles and techniques of business organization and management. An introduction to case problem-solving. 3 units.

103 **Personnel Management.** Factors and objectives which shape personnel policies of employers and practices which affectuate these policies. 3 units. Prerequisite: BA 101

104 **Organizational Behavior.** Theories and concepts on human behavior in organizations individual, small group, intergroup and supervisory behavior. 3 units.

114.1 **Accounting Theory and Practice I.** Accounting theory and the problems in the application of generally accepted accounting principles concerning asset accounts and the income statement. 6 units. Prerequisite: BA 99.2.

114.2 **Accounting Theory and Practice II**. Continuation of Accounting Theory and Practice I (to include liabilities, owner's, equity and special topics). 6 units Prerequisite: BA 114.1.

116 **Cost Accounting.** Principles of cost determination and control; job-order cost, process cost, estimated cost, and standard cost systems; budgetary control; analyses and uses of cost data. 6 units. Prerequisite: BA 114.1.

117 **Managerial Cost Accounting and Control.** Specialized topics in cost accounting for planning and control. 3 units. Prerequisite: BA 116 or consent.

118.1 **Advanced Accounting I.** Application of advanced accounting concepts to specific business activities such as partnerships, corporate liquidation, reorganization for financially distressed corporations, home office and branch operations, sales agency accounting, joint ventures and other special topics such as installment sales and foreign currency transaction. 6 units. Prerequisite: BA 114.2.

118.2 **Advanced Accounting II.** Application of advanced accounting concepts to specific business activities such as combined corporate entities and consolidations and other special topics such as non-profit organizations, insurance contracts and accounting for build-operate- transfer and its variants. 6 units. Prerequisite: BA 118.1.

119 **Special Topics in Accounting Theory.** A historical study of accounting theory and a critical evaluation of recent developments and trends in accounting thought. 3 units. Prerequisite: Senior Standing.

120.1 **Audit Theory.** Theories involved in the independent examination of accounts, standards and procedures; audit programs; preparation of audit reports and internal audit. This course will introduce the basic concepts underlying audit and other assurance services. 3 units. Prerequisite: BA 116 and BA 118.1.

120.2 **Audit Practice.** This course presents problems involved in the independent examination of accounts, standards and procedures; audit programs and working papers; preparation of audit reports and internal audit. 6 units. Prerequisite: BA 120.1, BA 118.2, Senior Standing.

121 **Accounting Systems.** Design and installation of accounting systems for management planning and control for selected industrial, commercial, financial and government organizations. 3 units. Prerequisite: BA 116.

122 **Government Accounting and Auditing Theory and Practice.** An integrated government accounting and auditing course. 3 units. Prerequisite: BA 114.2.

126 **Controllership.** The controllership function; characteristics of management control systems; the tools and techniques for controlling manufacturing, marketing and administrative costs; the tools and techniques for planning and decision making; financial planning policies and problems; motivation and control in organizations. 3 units. Prerequisite: Senior Standing (106 units completed).

127 **Tax Accounting I.** The application of the income tax and regulations in the determination of the tax liabilities of individuals, estates and trusts, partnerships and corporations. 3 units. Prerequisite: BA 114.2.

128 **Tax Accounting II.** The application of laws and regulations governing estate, inheritance and gift, business, and miscellaneous taxes in the determination of tax liabilities. 3 units. Prerequisites: BA 116 and BA 127.

129 **Management Services.** The management of consulting firm; preparation of feasibility studies; marketing, technical and financial aspects; project evaluation. 3 units. Prerequisite: Graduating students only.

132 **Financial Institutions.** Study of the structure, function and operations of financial institutions, money and capital markets. 3 units. Prerequisite: Econ 121 or consent.

141 **Business Finance I.** Financial management principles for short-and long-range planning. 3 units. Prerequisite: BA 114.2 or BA 115.

142 **Business Finance II.** Long-range planning and management of the long-term financial position of a business organization; recapitalization and liquidation. 3 units. Prerequisite: BA 141.

145 **Investments.** Principles and practices with special emphasis on the evaluation of project studies, security analysis and the establishment of standards for the selection of industry, issue, and security. 3 units. Prerequisite: Econ 121

145 **Investment Management**. Investment principles and practices, with special emphasis on security analysis and portfolio management in the Philippine context. 3 units

146 **Special Topics in Finance.** 3 units Prerequisite: Senior Standing.

161 **Law on Business Transactions and Transportation.** Obligations, contracts, sales, bailments, quasi-delicts, damages, law on common carriers, Code of Commerce on Transportation, Carriage of Goods by Sea Act, and all other related laws. 3 units. Prerequisite: Junior Standing

162 **Law on Business Organizations and Labor.** Single proprietorships, partnerships, corporations, cooperatives, Securities Act; laws on insolvency, civil code provision on the order of preference and concurrence of credits; labor code. 3 units. Prerequisite: BA 161 or consent.

163 **The Constitution and Fiscal Laws.** The Constitution of the Philippines, Law on Agrarian Reform, basic principles of taxation; internal revenue laws and municipal taxation; assessment laws, customs and tariff code and bookkeeping law. 3 units. Prerequisite: BA 161 or 160.1 and BA 160.2 or equivalent.

164 **Negotiable Instruments and Insurance.** Negotiable instruments, Warehouse Receipts Law, Documents of Title under the Civil Code and Insurance Law, all banking laws and related special laws. 3 units. Prerequisite: BA 161.

167 **Sales and Bailments and Other Special Laws.** Sales, Bulk Sales Law, Pledge, Real Mortgage, Chattel Mortgage, Loan, Usury, Deposit Guaranty. Agency and all other special laws. 3 units. Prerequisites: BA 161.

170 **Introduction to Marketing Management.** Marketing institutions, marketing policies and methods in a variety of industries handling both consumer and industrial goods. 3 units. Prerequisite: Junior standing (70 units completed).

173 **Marketing Management.** Analysis of problems in the various types of business enterprise from the perspective of management. 3 units. Prerequisite: BA 170 or consent.

174 **Marketing Research.** A survey of the techniques used in marketing research. Selected problems in the analysis of sales records, sales forecasting, estimating sales potentials, sampling consumer demand, determining the factors which influence demand for specific goods. 3 units. Prerequisite: BA 170 and Math 101.

181 **Management Science.** The use of management science/operations research in the analysis of business problems concerning production, marketing, personnel, and finance. 3 units. Prerequisite: Math 100 and 101 or consent.

183.1 **Introduction to Information Technology.** An introductory course on computers and data processing. Aims to familiarize students with the capabilities and limitations of computers. Presents the development of computer programs and provides students with basic skills in programming through hands-on training. 3 units.

183.2 **Basic Programming and Database Management.** The use of microcomputer-based word processing and electronic spreadsheet software. 3 units. Prerequisite: BA 183.1.

184.1 **Computer-based Accounting Systems.** Design and installation of manual and computerized accounting system and computerized bookkeeping. 3 units. BA 183.2,114,116,117,

184.2 **Audit of Computer-based Accounting Systems.** The impact of computers on the system of internal control and on the auditor's study and evaluation of such internal control. 3 units. Prerequisites: BA 184.1and BA 120.

187 **Production Management.** Principles, procedures and techniques in the design, operation and improvement of production systems. 3 units. Prerequisite: BA 101 or consent.

190 **Strategic Management.** Integration of the different management functional areas discussed and taken up from the point of view of general and top management with focus on formulation, execution, control and review of business strategies. 3 units. Prerequisite: Graduating Students only.

196 **Public Accounting Practice.** Integrated audit case. 3 units Prerequisites: BA 120.1 and BA 128.

199 **Business Research**. Concepts and theories in business research. 3 units. Prerequisite: Senior Standing.

Cooperative Management (CM)

102 **Introduction to Cooperatives.** Concepts, scope, principles, and laws of cooperatives. 3 units.

136 **Production and Operations Management in Cooperatives.** Study of actual production and operations management of cooperatives**.** 3 units. Prerequisite: CM 102

171 **Special Problems in Cooperative Marketing.** 3 units. Prerequisites: CM 102 and 136

Information Technology (IT)

101 **Fundamentals of Computer Information Technology.** Introduction to computer systems, software systems, terms and computer organizations; the use of computer-based productivity tools. 3 units.

102 **Fundamentals of Programming.** Expansion and development of material introduced in IT 101; systematic program designing and development, data structures and file processing, graphical user interface concepts, database system concepts. 3 units (2 lec, 3 lab). Prerequisites: I.T. 101; Mgt 181.

127 **Introduction to Database Management System.** Database Development, analysis and implementation; the use of query language. 3 units (2 lec, 3 lab) Prerequisite: I.T. 102

152 **Management Information System.** The role of MIS in the decision making process of management. This including the identification, evaluation, modification, and integration of information flows into the management information systems. 3 units (2 lec, 3 lab).. Prerequisite: I.T. 102.

Management (Mgt)

101 **Introduction to Management.** Principles and techniques of business organization and management. An introduction to case problem-solving. 3 units.

102 **Philippine Environment.** A survey of the cultural, social, economic, political and technological forces that influence management in the Philippines. 3 units. Prerequisite: Mgt 101 or BA 101

104 **Organizational Behavior.** Theories and concepts on human behavior in organizations; individual, small group, intergroup and supervisory behavior. 3 units

115 **Management Accounting.** Uses of economic and accounting concepts for managerial planning and control. 3 units. Prerequisites: BA 99.2, Econ 11, Math 100 and Mgt 101.

121 **Human Resource Management.** Factors and objectives which shape personnel policies of employers and practices which affectuate these policies. 3 units. Prerequisite: Mgt 101 or BA 101

138 **Enterprise Development and Management.** The systematic identification and selection of potential business ideas; determining the chosen project's feasibility in terms of its marketing, production, management and financial aspects. 3 units. Prerequisite: Seniors standing.

141 **Financial Management I.** Financial management principles for short- and long-range planning. 3 units. Prerequisite: Mgt 115.

142 **Financial Management II.** Long-range planning and management of the long-term financial position of a business organization; re-capitalization and liquidation. 3 units. Prerequisite: Mgt 141.

145 **Investments.** Principles and practices with special emphasis on the evaluation of project studies, security analysis and the establishment of standards for the selection of industry, issue and security. 3 units. Prerequisite: Senior Standing.

146 **Special Topics in Finance.** 3 units. Prerequisite: Senior Standing.

160 **Law and Business.** Basic concepts of governmental promotion and regulation of business through law and how they affect business decisions. 3 units. Prerequisite: Senior standing.

161 **Law on Business Transactions and Transportation.** Obligations, contracts, sales, bailments, quasi-delicts, damages, law on common carriers, Code of Commerce on transportation. Carriage of Goods by Sea Act, and all other related laws. 3 units.

162 **Law on Business Organizations and Labor.** Single proprietorships, partnerships, corporations, cooperatives, Securities Act; laws on insolvency, civil code provision on the order of preference and concurrence of credits; labor code. 3 units. Prerequisite: Mgt 161 or consent.

164 **Negotiable Instruments and Insurance.** Negotiable instruments, Warehouse Receipts Law, Documents of Title under the Civil Code and Insurance Law, all banking laws and related special laws. 3units. Prerequisites: BA 160.1 and BA 160.2 or equivalents

167 **Sales and Bailments and other Special Laws**. Sales, Bulk Sales Law, Pledge, Real Mortgage, Chattel Mortgage, Loan, Usury, Deposit Guaranty. Agency and all other special laws. 3 units. Prerequisites: BA 160.1 and BA 160.2 or equivalents.

168 **Special Topics in Business Law.** 3 units. Prerequisite: Mgt 160 or consent.

170 **Introduction to Marketing Management.** Marketing institutions, marketing policies and methods in a variety of industries handling both consumer and industrial goods. 3 units. Prerequisite: Junior Standing (Mgt May 11, 2013).

173 **Marketing Management.** Analysis of problems in the various types of business enterprise from the perspective of management. 3 units. Prerequisite: BA 170 or consent.

174 **Marketing Research.** A survey of the techniques used in marketing research. Selected problems in the analysis of sales records, sales forecasting, estimating sales potentials, sampling consumer demand, determining the factors which influence demand for specific goods. 3 units. Prerequisites: BA 170 and Math 101.

178 **Seminar in Marketing Management.** 3 units. Pre-requisite: BA 173

181 **Management Science.** The use of management science/operations research (MS/OR) in the analysis of business problems concerning production, marketing, human resource, and finance. 3 units. Prerequisite: Math 100 and Math 101

183 **Introduction to Information Systems.** An introduction to computer and information systems, network and telecommunications basics; Internet basics; foundations of information systems in management; and using IT for strategic advantage. 3 units (2 lec, 3 lab). Prerequisite: Mgt 101

186 **Management of Information Systems and Technology.** Strategic application of information systems and technology for effective managerial decision-making and policy formulation and implementation; and effective management of technological advances in planning and control. 3 units (2 lec, 3 lab). Prerequisite: Mgt 183.

187 **Operations Management**. Principles, procedures, and techniques in the design, operation, and improvement of production systems. 3 units. Prerequisite: Mgt 181.

190 **Strategic Management**. Integration of the different management functional areas discussed and taken up from the point of view of general and top management with focus on formulation, execution, control and review of business strategies. 3 units. Prerequisite: Senior Standing

192 **Management of Small Business.** Management of small business focuses on the practical aspects of successfully launching and managing small business. 3 units. Prerequisite: Mgt 191

193 **Enterprise Management Practice.** Fieldwork or hands-on component of the BS Management program designed to relate management theories, principles and best practices learned in class to the actual operations of a small business or enterprise. 3 units (2 lec, 3 lab) Prerequisite: Mgt 192

196 **Management Practice.** Undertake practicum in any enterprise/firm; application of management concepts and principles to develop managerial skills. 3 units. Senior standing.

197 **Special Topics in Management.** 3 units. Prerequisite: Graduating.

198 **Seminar.** 3 units. Prerequisite:

199 **Management Research**. Conduct of research in any field of management. 3 units. Prerequisite: Graduating.

Graduate Courses

Business Management (BM)

201 **Economic Analysis**. Economic theory and policy with reference to the Philippine developmental setting. 3 units.

211 **Management Science.** Various techniques of deterministic optimization involving univariate and multivariate functions. Includes differential and integral calculus, linear systems and matrices, and an introduction to linear programming. 3 units.

214 **Philippine Business Environment.** Sociological, technological, legal, psychological, economic, governmental and other external factor which influence decision making in organizations. 3 units.

220 **Management Accounting and Control.** Financial accounting policy of private and public organizations within the framework of accounting conventions: managerial cost accounting; responsibility accounting; introduction to managerial accounting systems. 3 units.

230 **Marketing Management.** The management of the marketing function of a Business Enterprise. 3 units.

236 **Global Trade Marketing.** Strategies in target market selection, market entry and expansion, export management, and global marketing, with emphasis on foreign market analysis and trade promotion. 3 units

238 **Enterprise Development and Management.** Dynamics of new enterprise creation, planning and management, entrepreneurial development, strategy formulation and implementation, particularly in small and medium scale enterprises. 3 units. Prerequisite: BM 220, BM 230, BM 240

240 **Operations Management**. The fundamental exposure to the environment of production and operations in the context of management systems. The major areas of Production and Operations Management are extensively treated in the applicative and conceptual envelopes in order to desire at the most efficient use of resources; the most effective optimization of output and the most efficacious implementation of decisions.3 units.

257 **Business Policy**. 3 units.

299 **Research Methods in Business Management.** Statistical description, estimation and inference; statistical decision theory; survey of research methods and analytical procedures in the social sciences and their application in management. 3 units.

Management (Mgt)

201 **Theory and Practice of Management.** Basic concepts and practices of management as applied in public, business, rural, educational, and health services. The relationship between the theory and practice of management will be emphasized. 3 units.

202 **Organizational Behavior.** The social and human dimensions in organizations that influence the ways in which managers organize processes and manage people. 3 units.

204 **Theory and Practice in Rural Development.** Concepts and approaches, goals, policies and strategies for rural development; rural development institutions; administrative processes and techniques; planning and implementation of rural development programs; and special issues in rural development. 3 units

205 **Economic Analysis.** Economic theory and policy with reference to the Philippine development setting. 3 units.

216 **Natural Resources and Environmental Economics.** Fundamental elements of the economic approach to natural resource and environmental issues, theoretical foundation and methods of application of environmental criteria in appraising and evaluating investment projects, particularly in the public sector, which may have significant environmental impact. 3 units.

221 **Human Resource Management.** Organization, processes and procedures in the management of human resources in different types of organization . 3 units. Prerequisite: Mgt 201

222 **Financial Management.** 3 units

243 **Program Development and Management.** Systematic analysis, planning, implementation and evaluation of programs and projects for effective service delivery and management. 3 units

254 **Cooperatives Management.** Deals with structures, processes and problems of cooperatives in the Philippine rural context. 3 units.

271 **Management of Change.** Factors influencing change in the internal and external environments of organizations; developments in the global settings; strategies and approaches related to the acceptance and diffusion of innovations. 3 units.

273 **Integrated Area Resource Management.** Concepts and approaches to sustainable resource and institutional development as applied to the upland, lowland and coastal areas. 3 units.

276 **Social Mobilization and Community Management.** Social awareness and techniques to motivate and mobilize community participation in local development; strategies in community needs assessment, conceptualization and implementation of community-based programs. 3 units.

286 **Management of Information Systems and Technology.** Information dimensions of decision making processes, effective management of technological advances in planning and control; strategic approaches and application of information systems and technology for effective managerial decision making and policy formulation and implementation. 3 units. Prerequisite: Mgt 201

290 **Strategic Management.** Functions and responsibilities of top management in an organization, factors that affects organizational performance, and the decisions that

determine or influence the character, operations, survival and competitiveness of different types of organizations. 3 units. Prerequisite: Mgt 201

297 **Special Topics in Management.** Critical analysis of management principles and theories as applied to contemporary issues and problems in management settings, local, national, or international. 3 units. Prerequisite: 21 units of required courses.

299 **Research Methods in Management.** Research methods and application in the field of management. 3 units. Prerequisite: Mgt 201.

Public Management (PM)

201 **Theory and Practice of Public Administration.** Ideas, issues and trends in public administration, the role of the bureaucracy in national development. 3 units.

211 **Public Organization and Governance.** Concepts, values, processes, structures, tools, trends and challenges in managing the public sector and public affairs, and the shifting orientations in Public Administration. 3 units.

213 **Administrative Communication.** Communication and its role in decision making including installation and maintenance of management information systems. 3 units.

231 **Public Fiscal Management**. Organization, processes, and procedures of fiscal administration covering such areas as revenue administration, budgeting, accounting, auditing and intergovernmental fiscal relations.
3 units.

239 **Fiscal Policy and Development Administration.** Examination of the revenue, expenditure and borrowing functions of government as policy instruments for development. 3 units.

241 **Public Policy Management.** Policy information and implementation at the program level; planning, implementation and evaluation of development programs. 3 units.

250 **Local Government Management.** The structure and functions of Philippine local governments; national-local relations; and citizen's participation in the planning and implementation of government programs. 3 units.

298 **Seminar in Public Management.** 3 units

BACHELOR OF ARTS (COMMUNICATION ARTS)

First Year First Semester

Course No.	Course Title	Units
GE AH 1*		3
GE SSP 1*		3
GE SSP 2*		3
GE MST 1		3
GE MST 2		3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		15

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE SSP3*		3
Math 11	College Algebra	3
GE MST 3		3
Socio 11		3
GE MST 4		3
PE		(2)
NSTP		(3)
		18

Second Year First Semester

Course No.	Course Title	Units
GE AH 3*		3
Psych 11	Principles of Psychology	3
GE AH 4*		3
Math 101	Elementary Statistics	3
C.A. 102	Introduction to Study of Language	3
Free Elective		3
PE		(2)
		18

Second Year Second Semester

Course No.	Course Title	Units
GE AH 5*		3
GE SSP 4*		3
GE SSP 5*		3
English 5	Expository Writing	3
C.A. 103	Introduction to Psych of Language	3
Free Elective		3
PE		(2)
		18

Third Year First Semester

Course No.	Course Title	Units
C.A. 104	Communication and Socio-Cultural Change	3
C.A. 105	Introduction to Film	3
Major Elective		3
Major Elective		3
Major Elective		3
Cognate		3
		18

Third Year Second Semester

Course No.	Course Title	Units
C.A. 106	Principles Of Public Relations and Advertising	3
C.A. 101	Introduction to Communication Theory	3
Major Elective		3
Major Elective		3
Major Elective		3
Cognate		3
		18

Fourth Year First Semester

Course No.	Course Title	Units
C.A. 108	Internship/Apprenticeship/ Directed Activities	3
C.A. 109	Research in Communication	3
P.I. 100	The Life and Works of Jose Rizal	3
Major Elective		3
Free Elective		3
Cognate		3
GE MST 5		3
		21

Fourth Year Second Semester

Course No.	Course Title	Units
C.A. 107	Law on Media	3
Major Elective		3
Major Elective		3
Major Elective		3
Cognate		3
Free Elective		3
		18

TOTAL NUMBER OF UNITS **144 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- units of Philippine Studies in any domain (e.g., Hist 1, Lit 1)

BACHELOR OF ARTS (SOCIAL SCIENCES) ECONOMICS

First Year First Semester

Course No.	Course Title	Units
GE AH1*		3
GE MST1		3
GE MST2		3
GE SSP1*		3
GE SSP2*		3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		15

First Year Second Semester

Course No.	Course Title	Units
GE AH *		3
GE MST3		3
GE SSP3*		3
Math 17	Algebra and Trigonometry	5
Pol Sci 11	Introduction to Political Science	3
PE		(2)
NSTP		(3)
		17

Second Year First Semester

Course No.	Course Title	Units
GE AH3*		3
GE AH4*		3
GE SSP4*		3
Econ 11	Introductory Economics *Prerequisite:* Math 11 or 17	3
Math 101	Elementary Statistics *Prerequisite:*Math 11 or 17	3
PE		(2)
		15

Second Year Second Semester

Course No.	Course Title	Units
GE AH5*		3
Math 100	Introduction to Calculus *Prerequisite:*Math 11, 14 or 17	4
Psych 11	Principles of Psychology	3
Pol Sci 14	Philippine Govt and Politics	3
Socio 11	Introductory Sociology	3
PE		(2)
		16

Third Year First Semester

Course No.	Course Title	Units
GE SSP5*		3
Cognate		3
Cognate		3
Eng 10	Writing Scientific Paper *Prerequisite:* Eng II	3
Econ 101	Macroeconomics *Prerequisite:* Econ 11 or consent	3
Econ 102	Microeconomics *Prerequisite:* Econ 11 or consent	3
		18

Third Year Second Semester

Course No.	Course Title	Units
Cognate		3
Cognate		3
Free Elective		3
Econ 109	History of Economic Doctrines *Prerequisite:* Econ 101 or consent	3
Econ 121	Money and Banking *Prerequisite:* Econ 101 or consent	3
Econ 171	Economics of Agriculture *Prerequisite:*Econ 102 or consent	3
		18

Fourth Year First Semester

Course No.	Course Title	Units
GE MST5		3
Free Elective		3
PI 100	The Life and Works of Jose Rizal	3
Econ 141	International Trade *Prerequisite:* Econ 101 or consent	3
Econ 151	Government Finance *Prerequisite:* Econ 101 or consent	3
Econ 181	Labor Economics *Prerequisite:* Econ 102 or consent	3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
Cognate		3
Cognate		3
Free Elective		3
Econ 191	Development Economics *Prerequisite:* Econ 101 or consent	3
Econ 198	Special Topics in Economics *Prerequisite:* consent	3
Econ 199	Seminar *Prerequisite:* consent	3
		18

TOTAL NUMBER OF UNITS **135 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

BACHELOR OF ARTS (SOCIAL SCIENCES) POLITICAL SCIENCE

First Year First Semester

Course No.	Course Title	Units
GE AH 1*		3
GE MST 1		3
GE MST 2		3
GE SSP 1*		3
GE SSP 2*		3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		15

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE MST 3		3
GE SSP 3*		3
Math 11	College Algebra	3
Pol Sci 11	Introduction to Political Science	3
PE		(2)
NSTP		(3)
		15

Second Year First Semester

Course No.	Course Title	Units
GE AH 3*		3
GE AH 4*		3
GE SSP 4*		3
Econ 11	Introductory Economics *Prerequisite:* Math 11 or 17	3
Math 101	Elementary Statistics *Prerequisite:*Math 11 or 17	3
PE		(2)
		15

Second Year Second Semester

Course No.	Course Title	Units
GE AH 5*		3
GE MST 4		3
Psych 11	Principles of Psychology	3
Pol Sci 14	Philippine Govt and Politics	3
Socio 11	Introductory Sociology	3
Free Elective		3
PE		(2)
		18

Third Year First Semester

Course No.	Course Title	Units
GE SSP 5*		3
Cognate		3
Cognate		3
Pol Sci 101	Intro. To Comparative Govt and Politics *Prerequisite:* Pol Sci 11 and 14	3
Pol Sci 150	Philippine National and Local Administration *Prerequisite:* Pol Sci 11 and 14	3
Pol Sci 160	Society, Politics and Govt. *Prerequisite:*Pol Sci 11 or consent	3
		18

Third Year Second Semester

Course No.	Course Title	Units
Cognate		3
Cognate		3
Eng 10	Writing Scientific Paper *Prerequisite:* Eng II	3
Free Elective		3
Pol Sci 163	Political Behavior: Processes and Movements Prerequisite: Pol Sci 160 or consent	3
Pol Sci 170	Comparative Western Politics *Prerequisite:*Pol Sci 11 and 14	3
		18

Fourth Year First Semester

Course No.	Course Title	Units
GE MST 5		3
Free Elective		3
PI 100	The Life and Works of Jose Rizal	3
Pol Sci 177	Government and Politics of Asia I	3
Pol Sci 182	International Politics *Prerequisite:* Pol Sci 170	3
Pol Sci 192	Ancient and Medieval Pol. Theory *Prerequisite:*Senior Standing	3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
Cognate		3
Cognate		3
Free Elective		3
Pol Sci 178	Government and Politics of Asia II *Prerequisite:*Pol Sci 11 and 14 or consent	3
Pol Sci 180	Philippine Foreign Policy *Prerequisite:*Pol Sci 11 and 14	3
Pol Sci 199	Research in Political Science *Prerequisite:*Pol Sci 11 and 14	3
		18

TOTAL NUMBER OF UNITS **135 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

BACHELOR OF ARTS (PSYCHOLOGY)

First Year First Semester

Course No.	Course Title	Units
GE AH 1*		3
GE MST 1		3
GE SSP 1*		3
GE SSP 2		3
GSP SSP 3		3
Math 11	College Algebra	3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		18

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE MST 2		3
GE MST 3		3
Math 101	Elementary Statistics	3
Psych 101	General Psychology	3
Socio 101	General Sociology	3
PE		(2)
NSTP		(3)
		18

Second Year First Semester

Course No.	Course Title	Units
GE AH 3		3
GE SSP 4		3
Econ 11	Introductory Economics	3
Lit 127	Mythology and Folk Literature	3
Psych 108	Filipino Psychology	3
Psych 110	Psychological Statistics	4
PE		(2)
		19

Second Year Second Semester

Course No.	Course Title	Units
GE AH 4		3
GE AH 5		3
GE MST 4		3
Psych 115	Experimental Psychology	5
Major Elective		3
PE		(2)
		17

Third Year First Semester

Course No.	Course Title	Units
GE SSP 5		3
Psych 118	Field Methods in Psychology	3
Psych 140	Behavior Analysis	3
Psych 150	Personality	3
Qualified Elective		3
Elective		3
		19

Third Year Second Semester

Course No.	Course Title	Units
Eng 10	Writing of Scientific Papers	3
Psych 155	Abnormal Behavior	3
Psych 162	Psychological Measurement	4
Psych 180	Social Psychology	3
Qualified Elective		3
Elective		3
		19

Fourth Year First Semester

Course No.	Course Title	Units
GE MST 5		3
Psych 171	Child Psychology	3
Psych 199.1	Research Methods in Psychology I	3
Qualified Elective		3
Elective		3
Elective		3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
PI 100	The Life and Works of Jose Rizal	3
Psych 185	Industrial Psychology	3
Psych 199.2	Research Methods in Psychology II	3
Qualified Elective		3
Elective		3
Elective		3
		18

TOTAL NUMBER OF UNITS **145 units**

* As per new GE requirements of the University, students will be required to take: (a) 6 units of communication courses in the Arts and Humanities domain, 3 units of which must be in written communication (the proponents have agreed to advise their students to take Comm 1 and Comm 2); and (b) 3 units in Philippine Studies in any domain (the proponents have agreed to advise their students to take History 1 under the Social Sciences and Philosophy domain).

BACHELOR OF SCIENCE IN ACCOUNTANCY

First Year First Semester

Course No.	Course Title	Units
GE AH 1*		3
GE SSP 1*		3
GE SSP 2*		3
GE MST 1		3
GE MST 2		3
Math 11	College Algebra	3
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		18

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE SSP 3*		3
GE SSP 4*		3
GE MST 3		3
Math 14	Plane Trigonometry	3
Pol Sci 14	Philippine Government and Politics	3
PE		(2)
NSTP		(3)
		18

Second Year First Semester

Course No.	Course Title	Units
GE AH3*		3
GE SSP5*		3
Math 100	Introduction to Calculus	4
Econ 11	Introductory Economics	3
BA 183.1	Intro to Information Technology	3
BA 99.1	Fundamental Accounting Theory and Practice I	3
PE		(2)
		19

Second Year Second Semester

Course No.	Course Title	Units
GE AH4*		3
BA 101	Introduction to Management	3
Math 101	Elementary Statistics	3
Econ 101	Macroeconomic Theory and Policy	3
Eng 11	Technical Writing for Business	3
BA 99.2	Fundamental Accounting Theory and Practice II	3
BA 183.2	Basic Programming and Database Management	3
PE		(2)
		21

Third Year First Semester

Course No.	Course Title	Units
GE AH 5*		3
Fil 10	Pag-uusap	3
Econ 102	Microeconomics	3
GE MST 4		3
BA 161	Law on Business Transactions and Transportation	3
BA 114.1	Accounting Theory and Practice I	6
		21

Third Year Second Semester

Course No.	Course Title	Units
Fil 11	Pagtatalakay	3
BA 170	Introduction to Marketing Management	3
BA 114.2	Accounting Theory and Practice II	6
BA 116	Cost Accounting	6
BA 162	Law on Business Organizations and Labor	3
		21

Fourth Year First Semester

Course No.	Course Title	Units
BA 104	Organizational Behavior	3
Econ 121	Money and Banking	3
BA 164	Negotiable Instruments and Insurance	3
BA 127	Tax Accounting I	3
BA 117	Management Cost Accounting and Control	3
BA 118.1	Advanced Accounting I	6
		21

Fourth Year Second Semester

Course No.	Course Title	Units
BA 181	Management Science	3
BA 167	Sales and Bailments and Other Special Law	3
BA 128	Tax Accounting II	3
BA 141	Business Finance I	3
BA 118.2	Advanced Accounting II	6
BA 120.1	Audit Theory	3
		21

Summer

Course No.	Course Title	Units
BA 196	Public Accounting Practice	**3**

Fifth Year First Semester

Course No.	Course Title	Units
BA 184.1	Computer-based Accounting Systems	3
BA 119	Special Topics in Acctng Theory	3
BA 122	Govt Accounting and Auditing	3
BA 187	Operations Management	3
BA 120.2	Audit Practice	6
BA 142	Business Finance II	3
		21

Fifth Year Second Semester

Course No.	Course Title	Units
PI 100	The Life and Works of Jose Rizal	3
BA 190	Strategic Management	3
BA 129	Management Services	3
BA 145	Investments	3
BA 199	Business Research	3
BA 184.2	Audit of Computer-based Accounting Systems	3
		18

TOTAL NUMBER OF UNITS **202 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

BACHELOR OF SCIENCE (BIOLOGY)

First Year First Semester

Course No.	Course Title	Units
GE AH 1*		3
GE SSP 1*		3
Math 11	College Algebra	3
Geo 11	Principles of Geology	3
Zoo 10	Fundamentals of Zoology	5
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		17

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE MST 1		3
Math 14	Plane Trigonometry	3
Bot 10	General Botany	5
Chem 11	General and Inorganic Chemistry	5
PE 2	Swimming	(2)
NSTP		(3)
		19

Second Year First Semester

Course No.	Course Title	Units
GE AH 3*		3
GE SSP 2*		3
Math 100	Introduction to Calculus	4
Chem 23	Inorganic and Analytical Chemistry	5
Zoo 111	Invertebrate Zoology *Pre-/Co-requisite(s):* Zoology 10	3
Zoo 111.1	Invertebrate Zoology, Lab	2
PE		(2)
		20

Second Year Second Semester

Course No.	Course Title	Units
GE AH 4*		3
GE SSP 3*		3
Bot 111	Plant Morphoanatomy and Diversity	3
Bot 111.1	Plant Morphoanatomy and Diversity, Lab	2
Bio 180	Statistical Methods in Biology	3
Chem 31	Elementary Organic Chemistry	3
Chem 31.1	Elementary Organic Chemistry, Lab	2
PE		(2)
		19

Third Year First Semester

Course No.	Course Title	Units
Bio 120	General Microbiology	3
Bio 120.1	General Microbiology, Lab	2
Physics 51	General Physics I	3
Physics 51.1	General Physics I, Lab	1
Chem 40	Elementary Biochemistry	3
Chem 40.1	Elementary Biochemistry, Lab	2
Zoo 102	Comparative Anatomy of Vertebrates	3
Zoo 102.1	Comparative Anatomy of Vertebrates, Lab	2
		19

Third Year Second Semester

Course No.	Course Title	Units
GE SSP 4*		3
Physics 52	General Physics II	3
Physics 52.1	General Physics II, Lab	1
Bio 150	Introduction to Molecular and Cell Biology	3
Bio 140	Elementary Genetics	3
Bio 140.1	Elementary Genetics, Lab	1
Bot 121	Elementary Plant Physiology	5
		19

Summer

Course No.	Course Title	Units
Bio 160	Ecology and Field Biology	3
Bio 160.1	Ecology and Field Biology, Lab	2
		5

Fourth Year First Semester

Course No.	Course Title	Units
GE AH 5*		3
GE SSP 5*		3
Free Elective		3
Bio 189	Technical Writing in Biology	3
P.I. 100	The Life and Works of Rizal	3
Zoo 131	Introduction to Developmental Biology of Animals	3
Zoo 131.1	Introduction to Developmental Biology of Animals, Lab	2
		20

Fourth Year Second Semester

Course No.	Course Title	Units
GE MST 2		3
Zoo 120	Animal Physiology	3
Zoo 120.1	Animal Physiology, Lab	2
Bio 196	Seminar in Biology	1
Bio 199	Research	3
Major Elective		3 - 5
		15 -17

TOTAL NUMBER OF UNITS **153 - 155units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

First Year First Semester

Course No.	Course Title	Units
GE AH 1*		3
GE SSP 1*		3
GE MST 1		3
CMSC 11	Introduction to Computer Science	3
Math 17	Algebra and Trigonometry	5
PE 1	Foundations of Physical Fitness	(2)
NSTP		(3)
		17

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE MST 2		3
GE SSP 2*		3
CMSC 21	Fundamentals of Programming	3
CMSC 56	Discrete Mathematical Structures in Computer Science 1	3
Math 53	Elementary Analysis I	5
PE		(2)
NSTP		(3)
		20

Second Year First Semester

Course No.	Course Title	Units
GE AH 3*		3
GE SSP 3*		3
CMSC 22	Fundamentals of Object-oriented Programming	3
CMSC 57	Discrete Mathematical Structures in Computer Science 2	3
Physics 51	General Physics I	3
Physics 51.1	General Physics I, Lab	1
Math 54	Elementary Analysis II	5
PE		(2)
		21

Second Year Second Semester

Course No.	Course Title	Units
GE AH 4*		3
GE MST 3		3
CMSC 123	Data Structures	3
CMSC 130	Logic Design and Digital Computer Circuits	3
Physics 52	General Physics II	3
Physics 52.1, Lab	General Physics II, Lab	1
Math 55	Elementary Analysis III	3
PE		(2)
		19

Third Year First Semester

Course No.	Course Title	Units
GE SSP 4*		3
GE AH 5*		3
CMSC 127	File Processing and Database Systems	3
CMSC 131	Introduction to Computer Organization and Machine Level Programming	3
CMSC 124	Automata and Language Theory	3
CMSC 142	Design and Analysis of Algorithms	3
Stat 105	Introduction to Statistical Analysis	3
		21

Third Year Second Semester

Course No.	Course Title	Units
GE SSP 5*		3
CMSC 141	Design and Implementation of Programming Languages	3
CMSC 125	Operating Systems	3
CMSC 128	Introduction to Software Engineering	3
Elective		3
Elective		3
		18

Summer

Course No.	Course Title	Units
CMSC 195	Practicum *Pre-/Co-requisite(s)* : Consent of Instructor	3

Fourth Year First Semester

Course No.	Course Title	Units
GE MST 4		3
CMSC 121	Internet Technologies	3
CMSC 132	Computer Architecture	3
CMSC 198.1	Special Problem 1	3
Elective		3
Elective		3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
P.I. 100	The Life and Works of Jose Rizal	3
CMSC 135	Data Communication and Networking	3
CMSC 198.2	Special Problem 2	3
CMSC 196	Undergraduate Seminar	1
Elective		3
Elective		3
		16

TOTAL NUMBER OF UNITS **153 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

BACHELOR OF SCIENCE IN MANAGEMENT

First Year First Semester

Course No.	Course Title	Units
GE AH 1*		3
GE MST 1		3
GE SSP 1*		3
GE SSP 2*		3
GE SSP 3*		3
Math 11	College Algebra	3
P E1	Foundations of Physical Fitness	(2)
NSTP		(3)
		18

First Year Second Semester

Course No.	Course Title	Units
GE AH 2*		3
GE AH 3*		3
GE MST 2		3
GE SSP 4*		3
Math 14	Plane Trigonometry	3
Pol. Sci. 14	Philippine Government and Politics	3
P E		(2)
NSTP		(3)
		18

Second Year First Semester

Course No.	Course Title	Units
GE SSP 5*		3
GE AH 4*		3
Mgt 101	Introduction to Management	3
BA 99.1	Fundamentals of Accounting Theory and Practice I	3
Econ 11	Introductory Economics	3
Math 100	Introduction to Calculus	4
PE		(2)
		19

Second Year Second Semester

Course No.	Course Title	Units
English 11	Technical Writing for Business	3
Mgt 104	Organizational Behavior	3
Mgt 183	Introduction to Information Systems	3
BA 99.2	Fundamentals of Accounting Theory and Practice II	3
Econ 101	Macroeconomic Theory and Policy	3
Math 101	Elementary Statistics	3
PE		(2)
		18

Third Year First Semester

Course No.	Course Title	Units
Mgt 115	Management Accounting	3
Mgt 121	Human Resource Management	3
Mgt 161	Law on Bus. Transactions and Transportation	3
Mgt 170	Introduction to Marketing Management	3
Mgt 181	Management Science	3
Econ 102	Microeconomics	3
		18

Third Year Second Semester

Course No.	Course Title	Units
GE AH 5*		3
GE MST 3		3
Mgt 162	Law on Business Organizations and Labor	3
Mgt 173	Marketing Management	3
Mgt 186	Management of Information Systems and Technology	3
Mgt 187	Operations Management	3
		18

Summer

Course No.	Course Title	Units
Mgt 191	Enterprise Planning and Development	3

Fourth Year First Semester

Course No.	Course Title	Units
Mgt 141	Financial Management I	3
Mgt 190	Strategic Management	3
Mgt 192	Management of Small Business	3
Mgt 199	Management Research	3
GE MST4		3
Elective	Major Elective[1]	3
		18

Fourth Year Second Semester

Course No.	Course Title	Units
Mgt 142	Financial Management II	3
Mgt 193	Enterprise Management Practice	3
Mgt 197	Special Topics in Management	3
P.I. 100	The Life and Works of Jose Rizal	3
Elective[2]	Free Elective	3
		15

TOTAL NUMBER OF UNITS **145 units**

* Additional G.E. requirement:

- In the Arts and Humanities domain, 6 units of communication courses, 3 units of which must be in written communication (e.g. Comm 1, Comm 2, Eng 2)
- 3 units of Philippine Studies in any domain (e.g. Hist 1, Lit 1)

List of Qualified Electives:
CM 102 Introduction to Cooperative Manageme
CM 136 Production and Operations in Cooperatives
CM 171 Special Problems in Cooperatives Marketing
IT 102 Fundamentals of Programming
IT 127 Introduction to Database Management Systems
IT 152 Management Information Systems
Mgt 145 Investments
Mgt 146 Special Topics in Finance
Mgt 164 Negotiable Instruments and Insurance
Mgt 167 Sales and Bailments and other Special Laws
Mgt 174 Marketing Research
Mgt 178 Seminar in Marketing Management

[1]Any Management subject in the list of qualified electives
[2]Any Management subject or non-Management 100-level course or any language course

MASTER OF MANAGEMENT (BUSINESS MANAGEMENT)

(for Part-time Students)

First Year First Semester

Course No.	Course Title	Units
Mgt 201	Theory and Practice of Management	3
Mgt 205	Economic Analysis	3
		6

First Year Second Semester

Course No.	Course Title	Units
Mgt 221	Human Resource Management	3
Mgt 286	Management of Information Systems and Technology	3
		6

Second Year First Semester

Course No.	Course Title	Units
BM211	Management Science	3
BM 230	Marketing Management	3
		6

Second Year Second Semester

Course No.	Course Title	Units
BM 220	Management Accounting and Control	3
BM 240	Operations Management	3
		6

Third Year First Semester

Course No.	Course Title	Units
BM 222	Theory and Practice of Management	3
Mgt 299	Research Methods in Management	3
		6

Third Year Second Semester

Course No.	Course Title	Units
Mgt 290	Strategic Management	3
Elective		3
		6

TOTAL NUMBER OF UNITS **36 units**

MASTER OF MANAGEMENT (PUBLIC MANAGEMENT)

(for Part-time Students)

First Year First Semester

Course No.	Course Title	Units
Mgt 201	Theory and Practice of Management	3
Mgt 205	Economic Analysis	3
		6

First Year Second Semester

Course No.	Course Title	Units
Mgt 221	Human Resource Management	3
Mgt 286	Management of Information Systems and Technology	3
		6

Second Year First Semester

Course No.	Course Title	Units
PM 211	Public Organization and Governance	3
PM 231	Public Fiscal Management	3
		6

Second Year Second Semester

Course No.	Course Title	Units
PM 241	Public Policy Management	3
PM 250	Local Government Management	3
		6

Third Year First Semester

Course No.	Course Title	Units
PM 298	Seminar in Public Management	3
Mgt 299	Research Methods in Management	3
		6

Third Year Second Semester

Course No.	Course Title	Units
Mgt 290	Strategic Management	3
Elective		3
		6

TOTAL NUMBER OF UNITS **36 units**

MASTER OF MANAGEMENT (BUSINESS MANAGEMENT)

(for Full-time Students)

First Year First Semester

Course No.	Course Title	Units
Mgt 201	Theory and Practice of Management	3
Mgt 205	Economic Analysis	3
Mgt 286	Management of Information Systems and Technology	3
		9

First Year Second Semester

Course No.	Course Title	Units
BM 211	Management Science	3
BM 230	Marketing Management	3
Mgt 221	Human Resource Management	3
		9

Second Year First Semester

Course No.	Course Title	Units
BM 220	Management Accounting and Control	3
BM 240	Operations Management	3
Mgt 299	Research Methods in Management	3
		9

Second Year Second Semester

Course No.	Course Title	Units
BM 222	Theory and Practice of Management	3
Mgt 290	Strategic Management	3
Elective		3
		9

TOTAL NUMBER OF UNITS **36 units**

MASTER OF MANAGEMENT (PUBLIC MANAGEMENT)

(for Full-time Students)

First Year First Semester

Course No.	Course Title	Units
Mgt 201	Theory and Practice of Management	3
Mgt 205	Economic Analysis	3
Mgt 286	Management of Information Systems and Technology	3
		9

First Year Second Semester

Course No.	Course Title	Units
PM 211	Public Organization and Governance	3
PM 231	Public Fiscal Management	3
Mgt 221	Human Resource Management	3
		9

Second Year First Semester

Course No.	Course Title	Units
PM 241	Public Policy Management	3
PM 250	Local Government Management	3
Mgt 299	Research Methods in Management	3
		9

Second Year Second Semester

Course No.	Course Title	Units
PM 298	Seminar in Public Management	3
Mgt 290	Strategic Management	3
Elective		3
		9

TOTAL NUMBER OF UNITS **36 units**

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