COLLEGE OF NATURAL AND APPLIED SCIENCES

AGRICULTURE & LIFE SCIENCES PROGRAM

PROSPECTUS

The undergraduate Agriculture & Life Sciences Program serves both College of Natural & Applied Sciences majors and non-major students of the University of Guam and other regional institutions. The program prepares majors to graduate with the knowledge, skills, and values that will enable them to succeed in professions (both public and private) in the life sciences and agriculture; graduate or other professional schools; and contributing to their families and communities. To non-majors, the program offers disciplinary knowledge and skills in agriculture and the life sciences through courses and minor programs.

Given the relevance of the program's disciplines to Guam's sustainability, we actively develop our courses to both interest and accommodate students from other disciplines at both the lower and upper division levels. The Agriculture & Life Sciences Program curriculum provides graduates with education, work, and training experiences designed to guide them into becoming professionals and leaders in Guam, the Western Pacific, and globally.

LEARNING OUTCOMES

1. Disciplinary knowledge and skills: Graduates will demonstrate integrated knowledge in their chosen fields of study and related sciences.
2. Research skills: Graduates possess critical thinking and analytical skills. Graduates are competent in basic procedures and safety protocols in conducting research. Graduates can use their knowledge and understanding of scientific concepts to explain and solve problems in their field.
3. Analytical skills: Graduates can apply quantitative and/or qualitative analytical methods in agriculture and the life sciences.
4. Communication skills: Graduates can gather and assess information and use it to create effective research and outreach communication media and oral presentations.
5. Ethics and professionalism: Graduates understand the ethical principles underlying research, publication, and professional behavior. Graduates can demonstrate teamwork and networking skills, and understand the importance of providing correct credit for others' work.
6. Multicultural competence: Graduates will develop cross-cultural respect and a foundation for life-long multicultural competence.
7. Life-long learning and integration of knowledge from the sciences and the arts: Graduates can empower themselves through lifelong learning to enhance their knowledge base, and demonstrate an ability to integrate knowledge from the sciences and the arts.

TRACKS

AGRICULTURE & LIFE SCIENCES TRACKS

The Agriculture & Life Sciences Program has four tracks:

Agriculture & Natural Resource Science

The Agriculture & Natural Resource Science track is intended for students who wish to continue their studies at the graduate level. This course of study will provide students with the necessary background to pursue the University's Master of Science degree in Sustainable Agriculture, Food, & Natural Resources or Environmental Science or any graduate program in agriculture and related fields in the United States or abroad. With

advanced training, the student could become a scientist working in a wide variety of fields, or a professional in areas of engineering, veterinary medicine and natural resources.

Tropical Agriculture Production

The Tropical Agriculture Production track is intended for students interested in professional careers in agriculture and related fields. The core courses will provide students with a broad foundation in agriculture with a concentration in tropical agriculture. Potential careers include an agriculture agent; quarantine officer; farm, landscape, or nursery management; agribusiness entrepreneur; natural resource conservation technician; service professional working with agricultural loans, crop assessment and forecasting agencies in government or private industry.

Human Nutrition & Food Sciences

Students majoring in the Human Nutrition & Food Sciences track are prepared for diverse careers in nutrition and food as well as to continue on to an approved dietetics program to become an eligible registered dietitian or pursue graduate school in a related field. The Human Nutrition & Food Sciences field of study includes work in environments such as the food industry, health care, and fitness facilities, nutrition education, extension education in nutrition, government or private-sector food and nutrition agencies, and science education.

Child & Family Life Sciences

The Child & Family Life Science track prepares students for careers with a diverse range of agencies and organizations that focus on improvement and/or maintenance of the well-being of individuals, families and communities in Guam, the Western Pacific, and the world. Professional networking opportunities with Guam-based organizations and community groups are fostered through the capstone experience requirements for the Agriculture & Life Sciences degree.

DEGREE REQUIREMENTS

MAJOR REQUIREMENTS

AGRICULTURE & LIFE SCIENCES MAJOR REQUIREMENTS (112–130 CREDIT HOURS)

Description	Credit Hours
General Education Courses	35-47
ALS Core Courses	22-25
Track-Specific Courses	55-60
Total Credit Hours	**112-130***

Note:

- *Students must complete a minimum of 15 credits of upper division Agriculture & Life Sciences courses.*
- *Agriculture & Life Science majors must have a "C" or better in all courses required for the major.*

General Education (35-47 credit hours)

Students must complete the General Education requirements listed in this catalog. Some of these courses are also Agriculture & Life Sciences program requirements and may be applied toward both sets of requirements. Consult your CNAS academic advisor or major advisor for recommendations that may count toward both General Education and major requirements.

Core Courses (22-25 credit hours)

Course	Course Title	Credits	Term Offered
AL101	INTRODUCTION TO AGRICULTURE	3	FALL/SPRING/ ALL YEARS
AL101L	INTRODUCTION TO AGRICULTURE LAB	1	FALL/SPRING/ ALL YEARS
AL185	HUMAN NUTRITION	3	FALL/SPRING/ ALL YEARS
AL351	PERSONAL AND FAMILY FINANCIAL MANAGEMENT	3	FALL ONLY/ ALL YEARS
AL499	CAPSTONE SEMINAR	3	FALL/SPRING/ ALL YEARS

Choice of (3-4 credit hours):

Course	Course Title	Credits	Term Offered
MA151	INTRODUCTORY STATISTICS	3	FALL/SPRING/ ALL YEARS
MA387	STATISTICS FOR SCIENCES	3	FALL ONLY/ ALL YEARS
MA387L	STATISTICS FOR SCIENCE LABORATORY	1	FALL ONLY/ ALL YEARS
BI412	BIOMETRICS	3	FALL ONLY/ ALL YEARS
BI412L	BIOMETRICS LABORATORY	1	FALL ONLY/ ALL YEARS

Choice of (3-5 credit hours):

Course	Course Title	Credits	Term Offered
MA161A	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA165	PRECALCULUS	5	FALL/SPRING/ ALL YEARS

Choice of (2-3 credit hours):

Course	Course Title	Credits	Term Offered
AL490	SPECIAL PROJECTS	2 - 3	FALL/SPRING/ ALL YEARS
AL498	INTERNSHIP	2 - 3	FALL/SPRING/ ALL YEARS

**Note: AL-101/L, AL-185, AL-499 courses may also apply to General Education requirements.*

Track-Specific Courses

Upon entering the program track, students will be assisted by an academic adviser to identify their career objectives and select an appropriate option for study.

When selecting electives, students are encouraged to complete one or more of the many minor options offered under the program. The minor options are designed to provide areas of specialization to both Agriculture & Life Sciences majors and non-majors.

Agriculture & Natural Resource Science Track Requirements (55 credit hours)

Required Courses (51 credit hours)

Course	Course Title	Credits	Term Offered
BI157	PRINCIPLES OF BIOLOGY I	3	SPRING ONLY/ ALL YEARS
BI157L	PRINCIPLES OF BIOLOGY I LABORATORY	1	SPRING ONLY/ ALL YEARS
BI158	PRINCIPLES OF BIOLOGY II	3	FALL ONLY/ ALL YEARS
BI158L	PRINCIPLES OF BIOLOGY II LABORATORY	1	FALL ONLY/ ALL YEARS
BI315	GENERAL GENETICS	3	FALL ONLY/ ALL YEARS
BI315L	GENERAL GENETICS LABORATORY	1	FALL ONLY/ ALL YEARS
CH102	GENERAL CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH102L	GENERAL CHEMISTRY LABORATORY	1	FALL ONLY/ ALL YEARS
CH103	GENERAL CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH103L	GENERAL CHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS
CH310A	ORGANIC CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH311	BASIC LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	FALL ONLY/ ALL YEARS
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ ALL YEARS
PH210	INTRODUCTORY PHYSICS LABORATORY	1	FALL ONLY/ ALL YEARS
AL281	PRINCIPLES OF HORTICULTURAL SCIENCE	3	SPRING ONLY/ ALL YEARS
AL281L	PRINCIPLES OF HORTICULTURAL SCIENCE LAB	1	SPRING ONLY/ ALL YEARS
AL380	PRINCIPLES OF SOIL SCIENCE	3	FALL ONLY/ ALL YEARS
AL380L	PRINCIPLES OF SOIL SCIENCE LABORATORY	1	FALL ONLY/ ALL YEARS

Choice of (4 credit hours):

Course	Course Title	Credits	Term Offered
AL136	SCIENCE OF AQUACULTURE	3	SPRING ONLY/ ALL YEARS
AL136L	SCIENCE OF AQUACULTURE LAB	1	SPRING ONLY/ ALL YEARS
AL211	INTRODUCTION TO ANIMAL SCIENCE	3	FALL ONLY/ ALL YEARS
AL211L	INTRODUCTION TO ANIMAL SCIENCE LAB	1	FALL ONLY/ ALL YEARS

Choice of (4 credit hours):

Course	Course Title	Credits	Term Offered
AL323	PLANT PATHOLOGY	3	FALL ONLY/ EVEN YEARS
AL323L	PLANT PATHOLOGY LAB	1	FALL ONLY/ EVEN YEARS
AL340	PEST MANAGEMENT	3	SPRING ONLY/ ODD YEARS
AL340L	PEST MANAGEMENT LAB	1	SPRING ONLY/ ODD YEARS
AL345	GENERAL ENTOMOLOGY	3	FALL ONLY/ ODD YEARS
AL345L	GENERAL ENTOMOLOGY LABORATORY	1	FALL ONLY/ ODD YEARS

Elective Courses (4 credit hours)

Upper division electives selected with an advisor. It is recommended to coordinate electives with Agriculture & Life Sciences or other UOG minor options.

Tropical Agriculture Production Track Requirements (59 credit hours)

Required Courses (47 credit hours)

Course	Course Title	Credits	Term Offered
AL102	INTRODUCTION TO PLANT SCIENCE	3	FALL/SPRING/ ALL YEARS
AL102L	INTRODUCTION TO PLANT SCIENCE LAB	1	FALL/SPRING/ ALL YEARS
AL281	PRINCIPLES OF HORTICULTURAL SCIENCE	3	SPRING ONLY/ ALL YEARS
AL281L	PRINCIPLES OF HORTICULTURAL SCIENCE LAB	1	SPRING ONLY/ ALL YEARS
AL321	HORTICULTURAL PLANT ID AND PROPAGATION	3	FALL ONLY/ EVEN YEARS
AL321L	HORTICULTURAL PLANT ID AND PROPAGATION LAB	1	FALL ONLY/ EVEN YEARS
AL323	PLANT PATHOLOGY	3	FALL ONLY/ EVEN YEARS
AL323L	PLANT PATHOLOGY LAB	1	FALL ONLY/ EVEN YEARS
AL340	PEST MANAGEMENT	3	SPRING ONLY/ ODD YEARS
AL340L	PEST MANAGEMENT LAB	1	SPRING ONLY/ ODD YEARS
AL345	GENERAL ENTOMOLOGY	3	FALL ONLY/ ODD YEARS
AL345L	GENERAL ENTOMOLOGY LABORATORY	1	FALL ONLY/ ODD YEARS

Course	Course Title	Credits	Term Offered
AL380	PRINCIPLES OF SOIL SCIENCE	3	FALL ONLY/ ALL YEARS
AL380L	PRINCIPLES OF SOIL SCIENCE LABORATORY	1	FALL ONLY/ ALL YEARS

Choice of (8 credit hours):

Course	Course Title	Credits	Term Offered
CH100	INTRODUCTION TO INORGANIC CHEMISTRY	3	FALL/SPRING/ ALL YEARS
CH100L	INTRODUCTION TO INORGANIC CHEMISTRY LABORATORY	1	FALL/SPRING/ ALL YEARS
CH101	INTRODUCTION TO ORGANIC CHEMISTRY	3	FALL/SPRING/ ALL YEARS
CH101L	INTRODUCTION TO ORGANIC CHEMISTRY LABORATORY	1	FALL/SPRING/ ALL YEARS
CH102	GENERAL CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH102L	GENERAL CHEMISTRY LABORATORY	1	FALL ONLY/ ALL YEARS
CH103	GENERAL CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH103L	GENERAL CHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS

Choice of (4 credit hours):

Course	Course Title	Credits	Term Offered
AL136	SCIENCE OF AQUACULTURE	3	SPRING ONLY/ ALL YEARS
AL136L	SCIENCE OF AQUACULTURE LAB	1	SPRING ONLY/ ALL YEARS
AL211	INTRODUCTION TO ANIMAL SCIENCE	3	FALL ONLY/ ALL YEARS
AL211L	INTRODUCTION TO ANIMAL SCIENCE LAB	1	FALL ONLY/ ALL YEARS

Choice of (3 credit hours):

Course	Course Title	Credits	Term Offered
AL389	EXTENSION PROGRAMS & PLANNING	3	SPRING ONLY/ ALL YEARS
AL451	AGRICULTURAL BUSINESS MANAGEMENT	3	SPRING ONLY/ ODD YEARS

Choice of (4 credit hours):

Course	Course Title	Credits	Term Offered
AL484	TROPICAL VEGETABLE PRODUCTION	3	SPRING ONLY/ ODD YEARS
AL484L	TROPICAL VEGETABLE PRODUCTION LAB	1	SPRING ONLY/ ODD YEARS
AL485	TROPICAL FRUITS HORTICULTURE	3	SPRING ONLY/ EVEN YEARS
AL485L	TROPICAL FRUITS HORTICULTURE LABORATORY	1	SPRING ONLY/ EVEN YEARS
AL486	ORNAMENTAL CROP PRODUCTION IN THE TROPICS	3	SPRING ONLY/ ODD YEARS
AL486L	ORNAMENTAL CROP PRODUCTION IN THE PACIFIC LABORATORY	1	SPRING ONLY/ ODD YEARS

Elective Courses (12 credit hours)

Upper division electives selected with an advisor. It is recommended to coordinate electives with Agriculture & Life Sciences or other UOG minor options.

Human Nutrition & Food Sciences Track Requirements (58–60 credit hours)

Required Courses (52-54 credit hours)

Course	Course Title	Credits	Term Offered
CH102	GENERAL CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH102L	GENERAL CHEMISTRY LABORATORY	1	FALL ONLY/ ALL YEARS
CH103	GENERAL CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH103L	GENERAL CHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS
BI124	HUMAN ANATOMY AND PHYSIOLOGY I	3	FALL ONLY/ ALL YEARS
BI124L	HUMAN ANATOMY & PHYSIOLOGY I LABORATORY	1	FALL ONLY/ ALL YEARS
BI125	HUMAN ANATOMY & PHYSIOLOGY II	3	SPRING ONLY/ ALL YEARS
BI125L	HUMAN ANATOMY & PHYSIO II LABORATORY	1	SPRING ONLY/ ALL YEARS
AL140	SCIENTIFIC PRINCIPLES OF FOOD PREPARATION	3	FALL ONLY/ ALL YEARS
AL140L	SCIENTIFIC PRINCIPLES OF FOOD PREPARATION LAB	1	FALL ONLY/ ALL YEARS
CH310A	ORGANIC CHEMISTRY	3	FALL ONLY/ ALL YEARS

Course	Course Title	Credits	Term Offered
CH311	BASIC LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	FALL ONLY/ ALL YEARS
AL330	NUTRITION THROUGHOUT THE LIFESPAN	3	FALL ONLY/ ALL YEARS
AL335	NUTRITION FOR HEALTH, FITNESS AND SPORT	3	SPRING ONLY/ ALL YEARS
AL342	FOOD SAFETY AND SANITATION	3	SPRING ONLY/ ODD YEARS
AL439	COMMUNITY NUTRITION	3	SPRING ONLY/ ODD YEARS
AL445	FOOD CHEMISTRY	3	SPRING ONLY/ EVEN YEARS
AL445L	FOOD CHEMISTRY LABORATORY	1	SPRING ONLY/ EVEN YEARS
AL460	ADVANCED HUMAN NUTRITION	4	FALL ONLY/ EVEN YEARS

Choice of (3 credit hours):

Course	Course Title	Credits	Term Offered
AL470	NUTRITION EDUCATION AND COUNSELING	3	FALL ONLY/ ODD YEARS
BI225	BASIC MICROBIOLOGY	3	FALL ONLY/ ALL YEARS
BI225L	BASIC MICROBIOLOGY LABORATORY	1	FALL ONLY/ ALL YEARS

Choice of (4-6 credit hours):

Course	Course Title	Credits	Term Offered
AL455G	NUTRITIONAL ASSESSMENT	3	SPRING ONLY/ ODD YEARS
AL475	MEDICAL NUTRITION THERAPHY	3	SPRING ONLY/ EVEN YEARS
AL300	FOOD PROCESSING TECHNOLOGY	3	FALL ONLY/ ODD YEARS
AL300L	FOOD PROCESSING TECHNOLOGY LAB	1	FALL ONLY/ ODD YEARS

Elective Courses (6 credit hours)

Upper division electives selected with an advisor. It is recommended to coordinate electives with Agriculture & Life Sciences or other UOG minor options.

Child & Family Life Sciences Track Requirements (58–59 credit hours)

Required Courses (49-50 credit hours)

Course	Course Title	Credits	Term Offered
AL140	SCIENTIFIC PRINCIPLES OF FOOD PREPARATION	3	FALL ONLY/ ALL YEARS
AL140L	SCIENTIFIC PRINCIPLES OF FOOD PREPARATION LAB	1	FALL ONLY/ ALL YEARS
ED201	HUMAN GROWTH AND DEVELOPMENT	3	FALL/SPRING/ ALL YEARS
AN212	CULTURAL ANTHROPOLOGY	3	FALL ONLY/ ALL YEARS
SO230	MARRIAGE AND THE FAMILY	3	FALL/SPRING/ ALL YEARS
SW313	RESEARCH METHODS FOR HEALTH AND SOCIAL SERVICES	3	SPRING ONLY/ ALL YEARS
ED300	EDUCATIONAL PSYCHOLOGY	3	FALL/SPRING/ ALL YEARS
AL330	NUTRITION THROUGHOUT THE LIFESPAN	3	FALL ONLY/ ALL YEARS
SW344	AGING: MYTH & REALITIES	3	FALL ONLY/ ALL YEARS
ED350	EFFECTIVE TEACHING STRATEGIES FOR THE ELEMENTARY MULTICULTURAL CLASSROOM	3	FALL/SPRING/ ALL YEARS
AL389	EXTENSION PROGRAMS & PLANNING	3	SPRING ONLY/ ALL YEARS
AL450	FAMILY RESOURCES	3	SPRING ONLY/ ODD YEARS

Choice of (3 credit hours):

Course	Course Title	Credits	Term Offered
HS200	HEALTH AND WELLNESS	3	FALL/SPRING/ ALL YEARS
ED363	P.E. AND HEALTH METHODS ELEMENTARY	3	SPRING ONLY/ ALL YEARS

Choice of (3 credit hours):

Course	Course Title	Credits	Term Offered
SO332	GLOBALIZATION AND HUMAN DYNAMICS	3	SPRING ONLY/ EVEN YEARS
SO360	SOCIAL MOVEMENTS AND CHANGE	3	SPRING ONLY/ ALL YEARS

Choice of (3-4 credit hours):

Course	Course Title	Credits	Term Offered
HS210	HUMAN BIOLOGY AND BEHAVIOR	3	FALL ONLY/ ALL YEARS
BI110	HUMAN BIOLOGY	3	AS REQUIRED
BI110L	HUMAN BIOLOGY LABORATORY	1	AS REQUIRED

Choice of (3-4 credit hours):

Course	Course Title	Credits	Term Offered
AL309	YOUTH AT RISK	3	FALL ONLY/ ODD YEARS
PE214	COMMUNITY HEALTH FOR EDUCATORS	3	FALL ONLY/ EVEN YEARS

Choice of (3 credit hours):

Course	Course Title	Credits	Term Offered
SW480	FAMILY VIOLENCE	3	SPRING ONLY/ ALL YEARS
ED334	SOLVING DISCIPLINE PROBLEMS: STRATEGIES FOR CLASSROOM TEACHERS	3	FALL/SPRING/ ALL YEARS

Elective Courses (9 credit hours)

Upper division electives selected with an advisor. It is recommended to coordinate electives with Agriculture & Life Sciences or other UOG minor options.

MINOR REQUIREMENTS

MINOR IN TROPICAL HORTICULTURE COURSE REQUIREMENTS (24 CREDITS)

Required Courses (24 credit hours)

Course	Course Title	Credits	Term Offered
AL281	PRINCIPLES OF HORTICULTURAL SCIENCE	3	SPRING ONLY/ ALL YEARS
AL281L	PRINCIPLES OF HORTICULTURAL SCIENCE LAB	1	SPRING ONLY/ ALL YEARS
AL340	PEST MANAGEMENT	3	SPRING ONLY/ ODD YEARS
AL340L	PEST MANAGEMENT LAB	1	SPRING ONLY/ ODD YEARS
AL380	PRINCIPLES OF SOIL SCIENCE	3	FALL ONLY/ ALL YEARS
AL380L	PRINCIPLES OF SOIL SCIENCE LABORATORY	1	FALL ONLY/ ALL YEARS
AL443	TECHNOLOGIES FOR SUSTAINABLE TROPICAL AGRICULTURE	3	SPRING ONLY/ ODD YEARS
AL443L	TECHONOLOGIES FOR SUSTAINABLE TROPICAL AGRICULTURE LABORATORY	1	SPRING ONLY/ ODD YEARS

Choice of (8 credit hours):

Course	Course Title	Credits	Term Offered
AL481	ENVIRONMENTAL SOIL SCIENCE	3	SPRING ONLY/ ODD YEARS
AL481L	ENVIRONMENTAL SOIL SCIENCE LABORATORY	1	SPRING ONLY/ ODD YEARS
AL484	TROPICAL VEGETABLE PRODUCTION	3	SPRING ONLY/ ODD YEARS
AL484L	TROPICAL VEGETABLE PRODUCTION LAB	1	SPRING ONLY/ ODD YEARS
AL485	TROPICAL FRUITS HORTICULTURE	3	SPRING ONLY/ EVEN YEARS
AL485L	TROPICAL FRUITS HORTICULTURE LABORATORY	1	SPRING ONLY/ EVEN YEARS

MINOR IN CROP & ENVIRONMENTAL PROTECTION

SCIENCE REQUIREMENTS (24 CREDITS)

Required Courses (16 credit hours)

Course	Course Title	Credits	Term Offered
AL281	PRINCIPLES OF HORTICULTURAL SCIENCE	3	SPRING ONLY/ ALL YEARS
AL281L	PRINCIPLES OF HORTICULTURAL SCIENCE LAB	1	SPRING ONLY/ ALL YEARS
AL380	PRINCIPLES OF SOIL SCIENCE	3	FALL ONLY/ ALL YEARS
AL380L	PRINCIPLES OF SOIL SCIENCE LABORATORY	1	FALL ONLY/ ALL YEARS
AL443	TECHNOLOGIES FOR SUSTAINABLE TROPICAL AGRICULTURE	3	SPRING ONLY/ ODD YEARS
AL443L	TECHONOLOGIES FOR SUSTAINABLE TROPICAL AGRICULTURE LABORATORY	1	SPRING ONLY/ ODD YEARS

Choice of (4 credit hours):

Course	Course Title	Credits	Term Offered
AL323	PLANT PATHOLOGY	3	FALL ONLY/ EVEN YEARS
AL323L	PLANT PATHOLOGY LAB	1	FALL ONLY/ EVEN YEARS
AL340	PEST MANAGEMENT	3	SPRING ONLY/ ODD YEARS
AL340L	PEST MANAGEMENT LAB	1	SPRING ONLY/ ODD YEARS
AL345	GENERAL ENTOMOLOGY	3	FALL ONLY/ ODD YEARS
AL345L	GENERAL ENTOMOLOGY LABORATORY	1	FALL ONLY/ ODD YEARS

Elective Courses (8 credit hours)

CEPS-related upper division electives (selected with and approved by ALS advisor)

MINOR IN FARM & NATURAL RESOURCES MANAGEMENT REQUIREMENTS (22 CREDITS)

Required Courses (22 credit hours)

Course	Course Title	Credits	Term Offered
AL102	INTRODUCTION TO PLANT SCIENCE	3	FALL/SPRING/ ALL YEARS
AL102L	INTRODUCTION TO PLANT SCIENCE LAB	1	FALL/SPRING/ ALL YEARS
AL281	PRINCIPLES OF HORTICULTURAL SCIENCE	3	SPRING ONLY/ ALL YEARS
AL281L	PRINCIPLES OF HORTICULTURAL SCIENCE LAB	1	SPRING ONLY/ ALL YEARS
AL351	PERSONAL AND FAMILY FINANCIAL MANAGEMENT	3	FALL ONLY/ ALL YEARS
AL451	AGRICULTURAL BUSINESS MANAGEMENT	3	SPRING ONLY/ ODD YEARS
AL484	TROPICAL VEGETABLE PRODUCTION	3	SPRING ONLY/ ODD YEARS
AL484L	TROPICAL VEGETABLE PRODUCTION LAB	1	SPRING ONLY/ ODD YEARS
AL485	TROPICAL FRUITS HORTICULTURE	3	SPRING ONLY/ EVEN YEARS
AL485L	TROPICAL FRUITS HORTICULTURE LABORATORY	1	SPRING ONLY/ EVEN YEARS

MINOR IN FOOD SCIENCE REQUIREMENTS (24 CREDITS)

Required Courses (23 credit hours)

Course	Course Title	Credits	Term Offered
CH310A	ORGANIC CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH311	BASIC LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	FALL ONLY/ ALL YEARS
AL140	SCIENTIFIC PRINCIPLES OF FOOD PREPARATION	3	FALL ONLY/ ALL YEARS
AL140L	SCIENTIFIC PRINCIPLES OF FOOD PREPARATION LAB	1	FALL ONLY/ ALL YEARS
BI225	BASIC MICROBIOLOGY	3	FALL ONLY/ ALL YEARS
BI225L	BASIC MICROBIOLOGY LABORATORY	1	FALL ONLY/ ALL YEARS
AL300	FOOD PROCESSING TECHNOLOGY	3	FALL ONLY/ ODD YEARS
AL300L	FOOD PROCESSING TECHNOLOGY LAB	1	FALL ONLY/ ODD YEARS
AL342	FOOD SAFETY AND SANITATION	3	SPRING ONLY/ ODD YEARS
AL445	FOOD CHEMISTRY	3	SPRING ONLY/ EVEN YEARS

Course	Course Title	Credits	Term Offered
AL445L	FOOD CHEMISTRY LABORATORY	1	SPRING ONLY/ EVEN YEARS

MINOR IN NUTRITION REQUIREMENTS (27 CREDITS)

Required Courses (18 credit hours)

Course	Course Title	Credits	Term Offered
AL140	SCIENTIFIC PRINCIPLES OF FOOD PREPARATION	3	FALL ONLY/ ALL YEARS
AL140L	SCIENTIFIC PRINCIPLES OF FOOD PREPARATION LAB	1	FALL ONLY/ ALL YEARS
AL185	HUMAN NUTRITION	3	FALL/SPRING/ ALL YEARS
AL330	NUTRITION THROUGHOUT THE LIFESPAN	3	FALL ONLY/ ALL YEARS

Choice of (8 credit hours):

Course	Course Title	Credits	Term Offered
BI124	HUMAN ANATOMY AND PHYSIOLOGY I	3	FALL ONLY/ ALL YEARS
BI124L	HUMAN ANATOMY & PHYSIOLOGY I LABORATORY	1	FALL ONLY/ ALL YEARS
BI125	HUMAN ANATOMY & PHYSIOLOGY II	3	SPRING ONLY/ ALL YEARS
BI125L	HUMAN ANATOMY & PHYSIO II LABORATORY	1	SPRING ONLY/ ALL YEARS
BI157	PRINCIPLES OF BIOLOGY I	3	SPRING ONLY/ ALL YEARS
BI157L	PRINCIPLES OF BIOLOGY I LABORATORY	1	SPRING ONLY/ ALL YEARS
BI158	PRINCIPLES OF BIOLOGY II	3	FALL ONLY/ ALL YEARS
BI158L	PRINCIPLES OF BIOLOGY II LABORATORY	1	FALL ONLY/ ALL YEARS

Elective Courses (9 credit hours)

Choice of three of the following courses selected with and approved by minor advisor:

Course	Course Title	Credits	Term Offered
AL439	COMMUNITY NUTRITION	3	SPRING ONLY/ ODD YEARS
AL335	NUTRITION FOR HEALTH, FITNESS AND SPORT	3	SPRING ONLY/ ALL YEARS
AL445	FOOD CHEMISTRY	3	SPRING ONLY/ EVEN YEARS
AL445L	FOOD CHEMISTRY LABORATORY	1	SPRING ONLY/ EVEN YEARS
AL470	NUTRITION EDUCATION AND COUNSELING	3	FALL ONLY/ ODD YEARS
AL475	MEDICAL NUTRITION THERAPHY	3	SPRING ONLY/ EVEN YEARS
AL342	FOOD SAFETY AND SANITATION	3	SPRING ONLY/ ODD YEARS
AL460	ADVANCED HUMAN NUTRITION	4	FALL ONLY/ EVEN YEARS

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BIOLOGY PROGRAM

PROSPECTUS

The Field

Biology is the study of living systems ranging from the chemical and physical underpinnings of all universal phenomena to the inner workings of the cell to organismal level inquiry and the complexities of populations, ecosystems, and biomes. The biological sciences encompass a broad, but interrelated, range of disciplines that lead to an equally diverse range of career paths.

Relevance and Demand

The world is experiencing a revolution in the biological disciplines as we have uncovered the genetic mechanisms by which it operates and the technology to manipulate them has become astonishingly rapid and cost-effective. These developments -- along with a greater understanding of complex biological systems -- have increased, and will continue to increase, our understanding of the biological world as well as allow this information to inform and drive improvements directly affecting humanity.

Why UOG?

UOG's Biology Program is unique as a result of our geographic placement that allows unequaled access to tropical organisms and ecosystems. We have purposefully designed our curriculum to take advantage of this and attract students from all over our region and worldwide. We also have purposefully incorporated a hands-on, research-focused approach from our foundational to capstone courses and believe this context prepares our students for real-world applications.

Given the relevance of the program's disciplines to Guam's sustainability, we actively develop our courses to both interest and accommodate students from other disciplines at both the lower and upper division levels. The Biology Program curriculum provides graduates with education, work, and training experiences designed to guide them into becoming professionals and leaders in Guam, the Western Pacific, and globally.

In support of its mission, the Biology unit encourages faculty capacity building in teaching-learning, assessment, research, and service. Mentoring assists students and faculty to achieve their potential.

Career and Post-Graduate Possibilities

An undergraduate degree in Biology offers inroads to many career paths dealing with our people and environment as well as to furthering careers that will ultimately produce all manner of health professionals. Biology majors have opportunities for undergraduate research experiences through laboratory classes, work as lab technicians, independent study projects, and guided original research.

Those who want to pursue post-graduate studies in the biological sciences will be prepared to compete for entry into demanding graduate programs at first-rate institutions worldwide.

Offerings for Non-Majors

The program provides courses for non-majors as well, including those majoring in Nursing, Agriculture & Life Sciences, and HPERD. The Biology Program also assists the Education program in training science teachers and enables students to meet the STEM goals of General Education requirements.

LEARNING OUTCOMES

1. **Disciplinary knowledge and skills:**
   Graduates use their knowledge and understanding of essential concepts to solve problems in ecology, genetics, molecular biology, systematics, and evolution. They can apply their biology knowledge and skills to locally important issues such as island biogeography, conservation, and endangered species problems. They apply relevant concepts from chemistry and physics to biology problems.
2. **Quantitative skills:**
   Graduates apply numerical methods in research design and use computers for analysis manipulating and modeling biological data.
3. **Research/laboratory skills:**
   Graduates are competent in basic biology procedures and safety in the laboratory and the field; they formulate testable hypotheses and create effective experimental designs using their knowledge, understanding, and practical experience of scientific instruments.
4. **Communication skills:**
   Graduates use scientific literature and diagrams as a source of information, properly cite sources and avoid plagiarism, and create text and graphics to communicate results effectively through print and oral presentations. They collect and assess evidence and use it to create effective arguments in writing scientific reports and proposals.
5. **Digital literacy:**
   Graduates use and process information in multiple formats via computer. Graduates are competent in the following computer skills as related to their science work: desktop competencies, word processing,

presentation, and data retrieval and manipulation. Graduates effectively judge the usefulness and accuracy of external sources of information.

6. **Professionalism:**
   Graduates work effectively together in teams in a laboratory and field settings and follow ethical principles underlying scientific research and publication. Graduates understand and apply the values and limitations of scientific research in addressing public policy issues.

TRACKS

BIOLOGY TRACKS

Integrative Biology

This track prepares students for a graduate degree in a biological science or a broad range of careers in the biological sciences. This track leads to the greatest number of opportunities in biology.

Bio-Medical

This track is for Biology majors intending to pursue medical, dental, pharmacy, veterinary school, or graduate school in biomedical research.

Applied Biology

This track is for Biology majors intending to begin an applied biology career at an introductory level with a government agency, consulting firm, medical testing lab, or educational venue. Although flexible, this track will not prepare students for graduate studies in the biological sciences, medicine, pharmacy, dentistry, or veterinary sciences.

BIOLOGY MINOR

Students may choose to minor in Biology for various reasons that broaden and strengthen their preparation and make them more competitive in their chosen fields. Students desiring entry into programs offering medical degrees who major in disciplines other than Biology find that they will need many Biology courses in order to compete and adding a Biology minor serves this purpose. Students in other majors have added the Biology minor in order to supplement their experience and allow them to specialize in a biologically focused area of their major studies, in such broad areas as education, business, and chemistry.

DEGREE REQUIREMENTS

MAJOR REQUIREMENTS

Students considering majoring in Biology should meet with the CNAS academic advisor for advising as early as possible in their college career.

In all three tracks, first-year students begin by taking BI-100/BI-100L Environmental Biology lecture and lab in the fanucha#nan (Aug.–Dec.) semester followed by BI-157/BI-157L Principles of Biology I lecture and lab in the subsequent fan#omna#kan (Jan.–May) semester. In fanucha#nan of the second year, students take BI-158/BI-158L Principles of Biology II lecture and lab along with BI-315/BI-315L Genetics lecture and lab.

Biology majors must have a "C" or better in all courses required for the major and must have a "C" or better in prerequisite coursework for biology courses.

INTEGRATIVE BIOLOGY TRACK (86–88 CREDIT HOURS)

General Education (Recommended Courses)

Tier II: Diversity Foundation:

Creative & Expressive Arts:

Course	Course Title	Credits	Term Offered
EN210	INTRODUCTION TO LITERATURE	3	FALL/SPRING/ ALL YEARS

Required Courses (74-75 credit hours)

Course	Course Title	Credits	Term Offered
BI100	ENVIRONMENTAL BIOLOGY	3	FALL/SPRING/ ALL YEARS
BI100L	ENVIRONMENTAL BIOLOGY LABORATORY	1	FALL/SPRING/ ALL YEARS
BI157	PRINCIPLES OF BIOLOGY I	3	SPRING ONLY/ ALL YEARS
BI157L	PRINCIPLES OF BIOLOGY I LABORATORY	1	SPRING ONLY/ ALL YEARS
BI158	PRINCIPLES OF BIOLOGY II	3	FALL ONLY/ ALL YEARS
BI158L	PRINCIPLES OF BIOLOGY II LABORATORY	1	FALL ONLY/ ALL YEARS
BI310	EVOLUTION	3	SPRING ONLY/ ALL YEARS
BI315	GENERAL GENETICS	3	FALL ONLY/ ALL YEARS
BI315L	GENERAL GENETICS LABORATORY	1	FALL ONLY/ ALL YEARS
BI320	SCIENTIFIC REPORT WRITING	2	SPRING ONLY/ ALL YEARS
BI321	SCIENTIFIC ARGUMENTS	2	SPRING ONLY/ ALL YEARS
BI412	BIOMETRICS	3	FALL ONLY/ ALL YEARS
BI412L	BIOMETRICS LABORATORY	1	FALL ONLY/ ALL YEARS
CH102	GENERAL CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH102L	GENERAL CHEMISTRY LABORATORY	1	FALL ONLY/ ALL YEARS
CH103	GENERAL CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH103L	GENERAL CHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS
CH310A	ORGANIC CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH310B	ORGANIC CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH311	BASIC LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	FALL ONLY/ ALL YEARS
CH312	LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	SPRING ONLY/ ALL YEARS
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ ALL YEARS
PH252	UNIVERSITY PHYSICS	4	SPRING ONLY/ ALL YEARS

Choice of (3 credit hours):

Course	Course Title	Credits	Term Offered
BI392	LABORATORY TEACHING AND ASSISTING	1 - 3	FALL/SPRING/ ALL YEARS

Or:

BI-390 Special Project

BI-398 Internship

BI-498 Internship

Choice of (4 credit hours):

Course	Course Title	Credits	Term Offered
BI302	PLANT BIOLOGY	3	FALL ONLY/ EVEN YEARS
BI302L	PLANT BIOLOGY LABORATORY	1	FALL ONLY/ EVEN YEARS
BI365	PLANT SYSTEMATICS	3	SPRING ONLY/ EVEN YEARS
BI365L	PLANT SYSTEMATICS LABORATORY	1	SPRING ONLY/ EVEN YEARS

Choice of (4 credit hours):

Course	Course Title	Credits	Term Offered
BI303	INVERTEBRATE ZOOLOGY	3	SPRING ONLY/ ODD YEARS
BI303L	INVERTEBRATE ZOOLOGY LABORATORY	1	SPRING ONLY/ ODD YEARS
BI333	COMPARATIVE VERTEBRATE ANATOMY	3	FALL ONLY/ ODD YEARS
BI333L	COMPARATIVE VERTEBRATE ANATOMY LABORATORY	1	FALL ONLY/ ODD YEARS
BI475	ADVANCE ANIMAL PHYSIOLOGY	3	SPRING ONLY/ ALL YEARS
BI475L	ADVANCED ANIMAL PHYSIOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS

Choice of (5-6 credit hours):

Course	Course Title	Credits	Term Offered
MA161A	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA161B	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA165	PRECALCULUS	5	FALL/SPRING/ ALL YEARS

BI-100/L, BI-157/L, BI-158/L, and CH-102/L may also fulfill General Education requirements.

May not be double counted as required, elective, or capstone courses.

Track-Specific Elective Courses (8 credit hours)

Elective courses cannot double count as track required courses. Other elective courses not listed here must be upper divsion science courses and approd by student's advisor and program chair.

Course	Course Title	Credits	Term Offered
BI225	BASIC MICROBIOLOGY	3	FALL ONLY/ ALL YEARS
BI225L	BASIC MICROBIOLOGY LABORATORY	1	FALL ONLY/ ALL YEARS
BI302	PLANT BIOLOGY	3	FALL ONLY/ EVEN YEARS
BI302L	PLANT BIOLOGY LABORATORY	1	FALL ONLY/ EVEN YEARS
BI303	INVERTEBRATE ZOOLOGY	3	SPRING ONLY/ ODD YEARS
BI303L	INVERTEBRATE ZOOLOGY LABORATORY	1	SPRING ONLY/ ODD YEARS
BI323	PLANT PATHOLOGY	3	FALL ONLY/ EVEN YEARS
BI323L	PLANT PATHOLOGY LAB	1	FALL ONLY/ EVEN YEARS
BI333	COMPARATIVE VERTEBRATE ANATOMY	3	FALL ONLY/ ODD YEARS
BI333L	COMPARATIVE VERTEBRATE ANATOMY LABORATORY	1	FALL ONLY/ ODD YEARS
BI350	ETHOLOGY	3	SPRING ONLY/ ALL YEARS
BI350L	ETHOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS
BI365	PLANT SYSTEMATICS	3	SPRING ONLY/ EVEN YEARS
BI365L	PLANT SYSTEMATICS LABORATORY	1	SPRING ONLY/ EVEN YEARS

Course	Course Title	Credits	Term Offered
BI345	GENERAL ENTOMOLOGY	3	FALL ONLY/ ODD YEARS
BI345L	GENERAL ENTOMOLOGY LABORATORY	1	FALL ONLY/ ODD YEARS
BI380	OCEANOGRAPHY	3	FALL ONLY/ ALL YEARS
BI380L	OCEANOGRAPHY LABORATORY	1	FALL ONLY/ ALL YEARS
BI410	ECOLOGY	3	SPRING ONLY/ ALL YEARS
BI410L	ECOLOGY LABORATORY	2	SPRING ONLY/ ALL YEARS
BI416	CELLULAR & MOLECULAR BIOLOGY	3	SPRING ONLY/ ALL YEARS
BI416L	CELLULAR & MOLECULAR BIOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS
BI419	BIOCHEMISTRY	3	SPRING ONLY/ ALL YEARS
BI419L	BIOCHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS
BI425	MOLECULAR MEDICINE	3	SPRING ONLY/ ODD YEARS
BI425L	MOLECULAR MEDICINE LABORATORY	2	SPRING ONLY/ ODD YEARS
BI430	SCIENTIFIC PHOTOGRAPHY	3	SPRING ONLY/ EVEN YEARS
BI430L	SCIENTIFIC PHOTOGRAPHY LABORATORY	1	
BI432	PHARMACOLOGY	3	FALL ONLY/ ODD YEARS
BI474	MARINE BOTANY	4	SPRING ONLY/ ODD YEARS
BI475	ADVANCE ANIMAL PHYSIOLOGY	3	SPRING ONLY/ ALL YEARS
BI475L	ADVANCED ANIMAL PHYSIOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS
GE480	SPECIAL TOPICS IN GEOGRAPHY	3	SPRING ONLY/ ALL YEARS

Capstone (4-5 credit hours)

Choice of:

Course	Course Title	Credits	Term Offered
BI410	ECOLOGY	3	SPRING ONLY/ ALL YEARS
BI410L	ECOLOGY LABORATORY	2	SPRING ONLY/ ALL YEARS
BI475	ADVANCE ANIMAL PHYSIOLOGY	3	SPRING ONLY/ ALL YEARS
BI475L	ADVANCED ANIMAL PHYSIOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS

Note: Biology capstone cannot double count as Integrative Biology required or elective courses.

BIO-MEDICAL TRACK (90-91 CREDIT HOURS)

General Education (Recommended Courses)

Tier II: Diversity Foundation

Human Sciences:

Course	Course Title	Credits	Term Offered
PY101	GENERAL PSYCHOLOGY	3	FALL/SPRING/ ALL YEARS
SO101	INTRODUCTION TO SOCIOLOGY	3	FALL/SPRING/ ALL YEARS

Creative & Expressive Arts:

Course	Course Title	Credits	Term Offered
EN210	INTRODUCTION TO LITERATURE	3	FALL/SPRING/ ALL YEARS

Required Courses (82-83 credit hours)

Course	Course Title	Credits	Term Offered
BI100	ENVIRONMENTAL BIOLOGY	3	FALL/SPRING/ ALL YEARS
BI100L	ENVIRONMENTAL BIOLOGY LABORATORY	1	FALL/SPRING/ ALL YEARS
BI124	HUMAN ANATOMY AND PHYSIOLOGY I	3	FALL ONLY/ ALL YEARS
BI124L	HUMAN ANATOMY & PHYSIOLOGY I LABORATORY	1	FALL ONLY/ ALL YEARS
BI125	HUMAN ANATOMY & PHYSIOLOGY II	3	SPRING ONLY/ ALL YEARS
BI125L	HUMAN ANATOMY & PHYSIO II LABORATORY	1	SPRING ONLY/ ALL YEARS
BI157	PRINCIPLES OF BIOLOGY I	3	SPRING ONLY/ ALL YEARS
BI157L	PRINCIPLES OF BIOLOGY I LABORATORY	1	SPRING ONLY/ ALL YEARS
BI158	PRINCIPLES OF BIOLOGY II	3	FALL ONLY/ ALL YEARS
BI158L	PRINCIPLES OF BIOLOGY II LABORATORY	1	FALL ONLY/ ALL YEARS
BI310	EVOLUTION	3	SPRING ONLY/ ALL YEARS
BI315	GENERAL GENETICS	3	FALL ONLY/ ALL YEARS
BI315L	GENERAL GENETICS LABORATORY	1	FALL ONLY/ ALL YEARS

Course	Course Title	Credits	Term Offered
BI320	SCIENTIFIC REPORT WRITING	2	SPRING ONLY/ ALL YEARS
BI321	SCIENTIFIC ARGUMENTS	2	SPRING ONLY/ ALL YEARS
BI225	BASIC MICROBIOLOGY	3	FALL ONLY/ ALL YEARS
BI225L	BASIC MICROBIOLOGY LABORATORY	1	FALL ONLY/ ALL YEARS
BI416	CELLULAR & MOLECULAR BIOLOGY	3	SPRING ONLY/ ALL YEARS
BI416L	CELLULAR & MOLECULAR BIOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS
BI419	BIOCHEMISTRY	3	SPRING ONLY/ ALL YEARS
BI419L	BIOCHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS
CH102	GENERAL CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH102L	GENERAL CHEMISTRY LABORATORY	1	FALL ONLY/ ALL YEARS
CH103	GENERAL CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH103L	GENERAL CHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS
CH310A	ORGANIC CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH310B	ORGANIC CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH311	BASIC LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	FALL ONLY/ ALL YEARS
CH312	LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	SPRING ONLY/ ALL YEARS
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ ALL YEARS
PH252	UNIVERSITY PHYSICS	4	SPRING ONLY/ ALL YEARS

Choice of (3 credit hours):

Course	Course Title	Credits	Term Offered
BI392	LABORATORY TEACHING AND ASSISTING	1 - 3	FALL/SPRING/ ALL YEARS

Or:

BI-390 Special Project

BI-398 Internship

BI-498 Internship

Choice of (5-6 credit hours):

Course	Course Title	Credits	Term Offered
MA165	PRECALCULUS	5	FALL/SPRING/ ALL YEARS
MA161A	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA161B	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS

BI-100/L, BI-157/L, BI-158/L, and CH-102/L may also fulfull General Education requirements.

Any upper division Biology (BI) course or other Chemistry (CH) or Health Sciences (HS) course approved by the Biology Program chair.

Track-Specific Elective Courses (4 credit hours)

Course	Course Title	Credits	Term Offered
BI302	PLANT BIOLOGY	3	FALL ONLY/ EVEN YEARS
BI302L	PLANT BIOLOGY LABORATORY	1	FALL ONLY/ EVEN YEARS
BI303	INVERTEBRATE ZOOLOGY	3	SPRING ONLY/ ODD YEARS
BI303L	INVERTEBRATE ZOOLOGY LABORATORY	1	SPRING ONLY/ ODD YEARS
BI323	PLANT PATHOLOGY	3	FALL ONLY/ EVEN YEARS
BI323L	PLANT PATHOLOGY LAB	1	FALL ONLY/ EVEN YEARS
BI333	COMPARATIVE VERTEBRATE ANATOMY	3	FALL ONLY/ ODD YEARS
BI333L	COMPARATIVE VERTEBRATE ANATOMY LABORATORY	1	FALL ONLY/ ODD YEARS
BI350	ETHOLOGY	3	SPRING ONLY/ ALL YEARS
BI350L	ETHOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS
BI345	GENERAL ENTOMOLOGY	3	FALL ONLY/ ODD YEARS
BI345L	GENERAL ENTOMOLOGY LABORATORY	1	FALL ONLY/ ODD YEARS
BI365	PLANT SYSTEMATICS	3	SPRING ONLY/ EVEN YEARS

Course	Course Title	Credits	Term Offered
BI365L	PLANT SYSTEMATICS LABORATORY	1	SPRING ONLY/ EVEN YEARS
BI380	OCEANOGRAPHY	3	FALL ONLY/ ALL YEARS
BI380L	OCEANOGRAPHY LABORATORY	1	FALL ONLY/ ALL YEARS
BI410	ECOLOGY	3	SPRING ONLY/ ALL YEARS
BI410L	ECOLOGY LABORATORY	2	SPRING ONLY/ ALL YEARS
BI412	BIOMETRICS	3	FALL ONLY/ ALL YEARS
BI412L	BIOMETRICS LABORATORY	1	FALL ONLY/ ALL YEARS
BI425	MOLECULAR MEDICINE	3	SPRING ONLY/ ODD YEARS
BI425L	MOLECULAR MEDICINE LABORATORY	2	SPRING ONLY/ ODD YEARS
BI430	SCIENTIFIC PHOTOGRAPHY	3	SPRING ONLY/ EVEN YEARS
BI430L	SCIENTIFIC PHOTOGRAPHY LABORATORY	1	
BI432	PHARMACOLOGY	3	FALL ONLY/ ODD YEARS
HS405	EPIDEMIOLOGY	3	FALL/SPRING/ ALL YEARS
HS322	KINESIOLOGY	3	FALL ONLY/ ALL YEARS
CH350	FOUNDATIONS OF PHYSICAL CHEMISTRY	3	FALL ONLY/ EVEN YEARS
CH350L	Foundations of Physical Chemistry LABORATORY	1	FALL ONLY/ EVEN YEARS

Capstone Course (4 credit hours)

Course	Course Title	Credits	Term Offered
BI475	ADVANCE ANIMAL PHYSIOLOGY	3	SPRING ONLY/ ALL YEARS
BI475L	ADVANCED ANIMAL PHYSIOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS

APPLIED BIOLOGY TRACK (87-89 CREDIT HOURS)

General Education (Recommended Courses)

Tier II: Diversity Foundation

Creative & Expressive Arts:

Course	Course Title	Credits	Term Offered
EN210	INTRODUCTION TO LITERATURE	3	FALL/SPRING/ ALL YEARS

Required Courses (55-56 credit hours)

Course	Course Title	Credits	Term Offered
BI100	ENVIRONMENTAL BIOLOGY	3	FALL/SPRING/ ALL YEARS
BI100L	ENVIRONMENTAL BIOLOGY LABORATORY	1	FALL/SPRING/ ALL YEARS
BI157	PRINCIPLES OF BIOLOGY I	3	SPRING ONLY/ ALL YEARS
BI157L	PRINCIPLES OF BIOLOGY I LABORATORY	1	SPRING ONLY/ ALL YEARS
BI158	PRINCIPLES OF BIOLOGY II	3	FALL ONLY/ ALL YEARS
BI158L	PRINCIPLES OF BIOLOGY II LABORATORY	1	FALL ONLY/ ALL YEARS
BI310	EVOLUTION	3	SPRING ONLY/ ALL YEARS
BI315	GENERAL GENETICS	3	FALL ONLY/ ALL YEARS
BI315L	GENERAL GENETICS LABORATORY	1	FALL ONLY/ ALL YEARS
BI320	SCIENTIFIC REPORT WRITING	2	SPRING ONLY/ ALL YEARS
BI321	SCIENTIFIC ARGUMENTS	2	SPRING ONLY/ ALL YEARS
BI412	BIOMETRICS	3	FALL ONLY/ ALL YEARS
BI412L	BIOMETRICS LABORATORY	1	FALL ONLY/ ALL YEARS
CH101	INTRODUCTION TO ORGANIC CHEMISTRY	3	FALL/SPRING/ ALL YEARS
CH101L	INTRODUCTION TO ORGANIC CHEMISTRY LABORATORY	1	FALL/SPRING/ ALL YEARS
CH102	GENERAL CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH102L	GENERAL CHEMISTRY LABORATORY	1	FALL ONLY/ ALL YEARS
CH103	GENERAL CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH103L	GENERAL CHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS

Choice of (3 credit hours):

Course	Course Title	Credits	Term Offered
BI392	LABORATORY TEACHING AND ASSISTING	1 - 3	FALL/SPRING/ ALL YEARS

Or:

BI-390 Special Project

BI-398 Internship

BI-498 Internship

Choice of (4 credit hours):

Course	Course Title	Credits	Term Offered
BI302	PLANT BIOLOGY	3	FALL ONLY/ EVEN YEARS
BI302L	PLANT BIOLOGY LABORATORY	1	FALL ONLY/ EVEN YEARS
BI365	PLANT SYSTEMATICS	3	SPRING ONLY/ EVEN YEARS
BI365L	PLANT SYSTEMATICS LABORATORY	1	SPRING ONLY/ EVEN YEARS

Choice of (4 credit hours):

Course	Course Title	Credits	Term Offered
BI303	INVERTEBRATE ZOOLOGY	3	SPRING ONLY/ ODD YEARS
BI303L	INVERTEBRATE ZOOLOGY LABORATORY	1	SPRING ONLY/ ODD YEARS
BI333	COMPARATIVE VERTEBRATE ANATOMY	3	FALL ONLY/ ODD YEARS
BI333L	COMPARATIVE VERTEBRATE ANATOMY LABORATORY	1	FALL ONLY/ ODD YEARS
BI475	ADVANCE ANIMAL PHYSIOLOGY	3	SPRING ONLY/ ALL YEARS
BI475L	ADVANCED ANIMAL PHYSIOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS

Choice of (5-6 credit hours):

Course	Course Title	Credits	Term Offered
MA161A	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA161B	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA165	PRECALCULUS	5	FALL/SPRING/ ALL YEARS

BI-100/L, BI-157/L, BI-158/L, and CH-102/L may also fulfill General Education requirements.

BI-410/L may not be double counted as required, elective, or capstone courses.

STEM Upper-Division Electives (16 credit hours)

Course	Course Title	Credits	Term Offered
BI302	PLANT BIOLOGY	3	FALL ONLY/ EVEN YEARS
BI302L	PLANT BIOLOGY LABORATORY	1	FALL ONLY/ EVEN YEARS
BI323	PLANT PATHOLOGY	3	FALL ONLY/ EVEN YEARS
BI323L	PLANT PATHOLOGY LAB	1	FALL ONLY/ EVEN YEARS
BI333	COMPARATIVE VERTEBRATE ANATOMY	3	FALL ONLY/ ODD YEARS
BI333L	COMPARATIVE VERTEBRATE ANATOMY LABORATORY	1	FALL ONLY/ ODD YEARS
BI350	ETHOLOGY	3	SPRING ONLY/ ALL YEARS
BI350L	ETHOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS
BI380	OCEANOGRAPHY	3	FALL ONLY/ ALL YEARS
BI380L	OCEANOGRAPHY LABORATORY	1	FALL ONLY/ ALL YEARS
BI430	SCIENTIFIC PHOTOGRAPHY	3	SPRING ONLY/ EVEN YEARS
BI430L	SCIENTIFIC PHOTOGRAPHY LABORATORY	1	
BI416	CELLULAR & MOLECULAR BIOLOGY	3	SPRING ONLY/ ALL YEARS
BI416L	CELLULAR & MOLECULAR BIOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS

Course	Course Title	Credits	Term Offered
BI425	MOLECULAR MEDICINE	3	SPRING ONLY/ ODD YEARS
BI425L	MOLECULAR MEDICINE LABORATORY	2	SPRING ONLY/ ODD YEARS
BI432	PHARMACOLOGY	3	FALL ONLY/ ODD YEARS
BI474	MARINE BOTANY	4	SPRING ONLY/ ODD YEARS
BI475	ADVANCE ANIMAL PHYSIOLOGY	3	SPRING ONLY/ ALL YEARS
BI475L	ADVANCED ANIMAL PHYSIOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS
BI365	PLANT SYSTEMATICS	3	SPRING ONLY/ EVEN YEARS
BI365L	PLANT SYSTEMATICS LABORATORY	1	SPRING ONLY/ EVEN YEARS
BI303	INVERTEBRATE ZOOLOGY	3	SPRING ONLY/ ODD YEARS
BI303L	INVERTEBRATE ZOOLOGY LABORATORY	1	SPRING ONLY/ ODD YEARS
BI345	GENERAL ENTOMOLOGY	3	FALL ONLY/ ODD YEARS
BI345L	GENERAL ENTOMOLOGY LABORATORY	1	FALL ONLY/ ODD YEARS
BI410	ECOLOGY	3	SPRING ONLY/ ALL YEARS
BI410L	ECOLOGY LABORATORY	2	SPRING ONLY/ ALL YEARS
CH310A	ORGANIC CHEMISTRY	3	FALL ONLY/ ALL YEARS

Course	Course Title	Credits	Term Offered
CH311	BASIC LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	FALL ONLY/ ALL YEARS
CH310B	ORGANIC CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH312	LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	SPRING ONLY/ ALL YEARS
CH330	QUANTITATIVE ANALYSIS	3	FALL ONLY/ ODD YEARS
CH330L	QUANTITATIVE ANALYSIS LABORATORY	2	FALL ONLY/ ODD YEARS
CH350	FOUNDATIONS OF PHYSICAL CHEMISTRY	3	FALL ONLY/ EVEN YEARS
CH350L	Foundations of Physical Chemistry LABORATORY	1	FALL ONLY/ EVEN YEARS
CH419	BIOCHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH419L	BIOCHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS

Note: Other STEM courses are possible if approved by student's advisor and program chair. Cannot double count courses taken to satisfy Core or Capstone requirements. Students must meet all course prerequisites prior to enrollment.

Career-Building Electives (12 credit hours)

Course	Course Title	Credits	Term Offered
BI225	BASIC MICROBIOLOGY	3	FALL ONLY/ ALL YEARS
BI225L	BASIC MICROBIOLOGY LABORATORY	1	FALL ONLY/ ALL YEARS
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
MA204	CALCULUS II	5	FALL/SPRING/ ALL YEARS
MA205	MULTIVARIABLE CALCULUS	4	FALL/SPRING/ ALL YEARS
MA301	DIFFERENTIAL EQUATIONS	3	SPRING ONLY/ ALL YEARS
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ ALL YEARS
PH252	UNIVERSITY PHYSICS	4	SPRING ONLY/ ALL YEARS
HS200	HEALTH AND WELLNESS	3	FALL/SPRING/ ALL YEARS
HS216	INTRODUCTION TO PUBLIC HEALTH	3	FALL ONLY/ ALL YEARS
HS405	EPIDEMIOLOGY	3	FALL/SPRING/ ALL YEARS
AL281	PRINCIPLES OF HORTICULTURAL SCIENCE	3	SPRING ONLY/ ALL YEARS
AL281L	PRINCIPLES OF HORTICULTURAL SCIENCE LAB	1	SPRING ONLY/ ALL YEARS
AL300	FOOD PROCESSING TECHNOLOGY	3	FALL ONLY/ ODD YEARS
AL300L	FOOD PROCESSING TECHNOLOGY LAB	1	FALL ONLY/ ODD YEARS

Course	Course Title	Credits	Term Offered
AL443	TECHNOLOGIES FOR SUSTAINABLE TROPICAL AGRICULTURE	3	SPRING ONLY/ ODD YEARS
AL443L	TECHONOLOGIES FOR SUSTAINABLE TROPICAL AGRICULTURE LABORATORY	1	SPRING ONLY/ ODD YEARS
AL445	FOOD CHEMISTRY	3	SPRING ONLY/ EVEN YEARS
AL445L	FOOD CHEMISTRY LABORATORY	1	SPRING ONLY/ EVEN YEARS
AL484	TROPICAL VEGETABLE PRODUCTION	3	SPRING ONLY/ ODD YEARS
AL484L	TROPICAL VEGETABLE PRODUCTION LAB	1	SPRING ONLY/ ODD YEARS
AL485	TROPICAL FRUITS HORTICULTURE	3	SPRING ONLY/ EVEN YEARS
AL485L	TROPICAL FRUITS HORTICULTURE LABORATORY	1	SPRING ONLY/ EVEN YEARS
AL486	ORNAMENTAL CROP PRODUCTION IN THE TROPICS	3	SPRING ONLY/ ODD YEARS
AL486L	ORNAMENTAL CROP PRODUCTION IN THE PACIFIC LABORATORY	1	SPRING ONLY/ ODD YEARS

Course	Course Title	Credits	Term Offered
AL389	EXTENSION PROGRAMS & PLANNING	3	SPRING ONLY/ ALL YEARS
AL401	COMMUNITY PLANNING	3	AS REQUIRED
BA110	PRINCIPLES OF ECONOMICS	3	FALL/SPRING/ ALL YEARS
BA200	PRINCIPLES OF FINANCIAL ACCOUNTING	3	FALL/SPRING/ ALL YEARS
BA240	MANAGEMENT OF ORGANIZATIONS	3	FALL/SPRING/ ALL YEARS
BA241	HUMAN RESOURCE MANAGEMENT	3	FALL/SPRING/ ALL YEARS
CO226	MEDIA WRITING	3	FALL/SPRING/ ALL YEARS
CO350	PUBLIC SPEAKING	3	SPRING ONLY/ ALL YEARS
CO370	ORGANIZATIONAL COMMUNICATION	3	SPRING ONLY/ ODD YEARS
LW360	ADMINISTRATIVE PROCEDURE	3	FALL/SPRING/ ALL YEARS
PA201	PUBLIC ADMINISTRATION IN GUAM AND IN THE WESTERN PACIFIC	3	FALL/SPRING/ ALL YEARS
PA210	PUBLIC ADMINISTRATION AND MANAGEMENT: CONCEPTS AND APPLICATIONS	3	FALL/SPRING/ ALL YEARS
PA215	SUPERVISION IN	3	FALL/SPRING/ ALL YEARS

Course	Course Title	Credits	Term Offered
	GOVERNMENT ORGANIZATIONS		
PA303	GOVERNMENT FINANCE	3	FALL/SPRING/ ALL YEARS
PA304	GOVERNMENT PUBLIC INFORMATION	3	FALL/SPRING/ ALL YEARS
ED110	INTRODUCTION TO TEACHING	3	FALL/SPRING/ ALL YEARS
ED271	TECHNOLOGY APPLICATIONS FOR EDUCATORS	3	FALL/SPRING/ ALL YEARS

Note: Other Career-Building courses are possible if approved by student's advisor and program chair. Cannot double count courses taken to satisfy Core or Capstone requirements. Students must meet all course prerequisites prior to enrollment.

Capstone Course (4-5 credit hours)

Course	Course Title	Credits	Term Offered
BI410	ECOLOGY	3	SPRING ONLY/ ALL YEARS
BI410L	ECOLOGY LABORATORY	2	SPRING ONLY/ ALL YEARS
BI475	ADVANCE ANIMAL PHYSIOLOGY	3	SPRING ONLY/ ALL YEARS
BI475L	ADVANCED ANIMAL PHYSIOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS

Cannot double count as Applied Biology Core Courses or STEM/Career Building Electives.

MINOR REQUIREMENTS

BIOLOGY MINOR REQUIREMENTS (33-35 CREDIT HOURS)

Required Courses (25-27 credit hours)

Course	Course Title	Credits	Term Offered
BI100	ENVIRONMENTAL BIOLOGY	3	FALL/SPRING/ ALL YEARS
BI100L	ENVIRONMENTAL BIOLOGY LABORATORY	1	FALL/SPRING/ ALL YEARS
BI157	PRINCIPLES OF BIOLOGY I	3	SPRING ONLY/ ALL YEARS
BI157L	PRINCIPLES OF BIOLOGY I LABORATORY	1	SPRING ONLY/ ALL YEARS
BI158	PRINCIPLES OF BIOLOGY II	3	FALL ONLY/ ALL YEARS
BI158L	PRINCIPLES OF BIOLOGY II LABORATORY	1	FALL ONLY/ ALL YEARS
BI310	EVOLUTION	3	SPRING ONLY/ ALL YEARS
BI315	GENERAL GENETICS	3	FALL ONLY/ ALL YEARS
BI315L	GENERAL GENETICS LABORATORY	1	FALL ONLY/ ALL YEARS
MA115	INTRODUCTORY COLLEGE ALGEBRA	3	FALL/SPRING/ ALL YEARS

Choice of (3-5 credit hours):

Course	Course Title	Credits	Term Offered
MA161A	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA165	PRECALCULUS	5	FALL/SPRING/ ALL YEARS

Elective Courses (8 credit hours)

Must meet respective prerequisites to enroll.

Course	Course Title	Credits	Term Offered
BI225	BASIC MICROBIOLOGY	3	FALL ONLY/ ALL YEARS
BI225L	BASIC MICROBIOLOGY LABORATORY	1	FALL ONLY/ ALL YEARS
BI302	PLANT BIOLOGY	3	FALL ONLY/ EVEN YEARS
BI302L	PLANT BIOLOGY LABORATORY	1	FALL ONLY/ EVEN YEARS
BI303	INVERTEBRATE ZOOLOGY	3	SPRING ONLY/ ODD YEARS
BI303L	INVERTEBRATE ZOOLOGY LABORATORY	1	SPRING ONLY/ ODD YEARS
BI320	SCIENTIFIC REPORT WRITING	2	SPRING ONLY/ ALL YEARS
BI321	SCIENTIFIC ARGUMENTS	2	SPRING ONLY/ ALL YEARS
BI323	PLANT PATHOLOGY	3	FALL ONLY/ EVEN YEARS
BI323L	PLANT PATHOLOGY LAB	1	FALL ONLY/ EVEN YEARS
BI333	COMPARATIVE VERTEBRATE ANATOMY	3	FALL ONLY/ ODD YEARS
BI333L	COMPARATIVE VERTEBRATE ANATOMY LABORATORY	1	FALL ONLY/ ODD YEARS
BI345	GENERAL ENTOMOLOGY	3	FALL ONLY/ ODD YEARS
BI345L	GENERAL ENTOMOLOGY LABORATORY	1	FALL ONLY/ ODD YEARS

Course	Course Title	Credits	Term Offered
BI350	ETHOLOGY	3	SPRING ONLY/ ALL YEARS
BI350L	ETHOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS
BI365	PLANT SYSTEMATICS	3	SPRING ONLY/ EVEN YEARS
BI365L	PLANT SYSTEMATICS LABORATORY	1	SPRING ONLY/ EVEN YEARS
BI380	OCEANOGRAPHY	3	FALL ONLY/ ALL YEARS
BI380L	OCEANOGRAPHY LABORATORY	1	FALL ONLY/ ALL YEARS
BI392	LABORATORY TEACHING AND ASSISTING	1 - 3	FALL/SPRING/ ALL YEARS
BI410	ECOLOGY	3	SPRING ONLY/ ALL YEARS
BI410L	ECOLOGY LABORATORY	2	SPRING ONLY/ ALL YEARS
BI412	BIOMETRICS	3	FALL ONLY/ ALL YEARS
BI412L	BIOMETRICS LABORATORY	1	FALL ONLY/ ALL YEARS
BI416	CELLULAR & MOLECULAR BIOLOGY	3	SPRING ONLY/ ALL YEARS
BI416L	CELLULAR & MOLECULAR BIOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS
BI419	BIOCHEMISTRY	3	SPRING ONLY/ ALL YEARS
BI419L	BIOCHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS
BI425	MOLECULAR MEDICINE	3	SPRING ONLY/ ODD YEARS
BI425L	MOLECULAR MEDICINE LABORATORY	2	SPRING ONLY/ ODD YEARS
BI430	SCIENTIFIC PHOTOGRAPHY	3	SPRING ONLY/ EVEN YEARS
BI430L	SCIENTIFIC PHOTOGRAPHY LABORATORY	1	
BI432	PHARMACOLOGY	3	FALL ONLY/ ODD YEARS
BI474	MARINE BOTANY	4	SPRING ONLY/ ODD YEARS
BI475	ADVANCE ANIMAL PHYSIOLOGY	3	SPRING ONLY/ ALL YEARS
BI475L	ADVANCED ANIMAL PHYSIOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS

Or:

BI-390 Special Project

BI-398 Internship

BI-498 Internship

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CHEMISTRY PROGRAM

PROSPECTUS

The Chemistry major and minor programs are designed to prepare students for:

1. graduate work in chemistry;
2. admission to medical, dental, pharmacy, and veterinary schools;
3. employment in laboratory-oriented positions in government and industry; and
4. teaching secondary school chemistry, provided teaching certification requirements of the School of Education are fulfilled.

The Chemistry Program also provides course offerings in chemistry required by major programs in agriculture, biology, engineering, nursing, and other health-related sciences.

The small class sizes allow students to get close supervision and more hands-on training. Students can gain unique research experience through internship opportunities at UOG's Water & Environmental Research Institute, Marine Laboratory, and Crime Lab. The Chemistry Program curriculum is also closely aligned to the American Chemical Society standards.

LEARNING OUTCOMES

1. Demonstrate the knowledge of fundamental concepts of chemistry and its relevance to the scientific method and other fields in science with the following objectives:
   a. Students should be able to explain the scientific method and relate its application to chemical discoveries.
   b. Students will able to define the states and structure of matter and relate these to physical and chemical properties.
   c. Students should be able to define chemistry and state its relevance to other sciences and everyday experience.
   d. Students should be able to apply the fundamental concepts of elements and compounds and their reactivity to solve chemically based problems.
2. Demonstrate the skills to make observations, conduct experimentation, collect and collate data, analyze and interpret data in a safe chemical environment with the following objectives:
   a. Students will be able to independently perform accurate quantitative measurements, interpret experimental results, perform calculations on these results and draw a reasonable, accurate conclusion.
   b. Students will synthesize, isolate, purify, and characterize a series of compounds using modern methods.
   c. Students will demonstrate knowledge of proper use of modern instrumental techniques.
   d. Students will be able to design an experimental procedure.
   e. Students will observe safe practices in the laboratory and will know how to respond in an emergency. Students will learn to gather hazardous materials information and will recognize and respond properly to potential hazards of handling chemicals and chemical waste.
3. Demonstrate the ability to clearly articulate, formulate, and communicate scientific information using computer, written and oral communication skills with the following:
   a. Students will communicate critical analysis of scientific information through written reports and laboratory notebooks.
   b. Students will effectively communicate scientific information through oral presentations.
   c. Students will use computer technology to gather, process, analyze, and present chemical data.
   d. Students will use chemical literature and computer resources to gather research information.
4. Demonstrate critical thinking, problem-solving skills, and the ability to use chemical knowledge and mathematical skills to identify, evaluate, analyze, synthesize, and integrate data and abstract ideas in solving problems with the following objectives:
   a. Students should be able to describe the structure and composition of matter.
   b. Students should be able to solve qualitative and quantitative problems.
   c. Students should be able to apply theoretical and mechanistic principles to the study of chemical systems using quantitative and qualitative approaches.
   d. Students should be able to explain the role of energy in determining the structure and reactivity of matter.
   e. Students should be able to apply theoretical knowledge and chemical information to industry and everyday experience.
5. Demonstrate the knowledge and skills in advanced instrumentation, applications, interpretation, and experimental design to address scientific queries in chemistry, industry, the environment, health, and related fields with the following objectives:
   a. Students should be able to use modern analytical instrumentations.
   b. Students should be able to interpret data and relate these to chemical structure and properties.
   c. Students should be able to relate the application of instrumentation to industries.
   d. Students should be able to develop an appreciation of the wide range of instrumental methods, their applications, and limitations.

6. Demonstrate a sense of exploration and research approach that enables students to pursue lifelong learning in chemistry with the following objectives:
   a. Students will use chemical literature and computer resources to gather research information.
   b. Students should be able to critically evaluate scientific information.
   c. Students should be able to develop research project and design experimental approach.
7. Demonstrate interaction skills and teamwork with the following objectives:
   a. Students should be able to work cooperatively in problem solving exercise.
   b. Students should be able to exercise leadership skills in teamwork.
8. Students should demonstrate adequate interpersonal communication skills.

TRACKS

CHEMISTRY TRACKS

The Chemistry Program offers four tracks under two degrees:

Bachelor of Science in Chemistry

- Chemistry: This track is tailored for students planning to pursue graduate studies in chemistry, physics, and chemical engineering. This track would also be ideal for those who seek employment in industry upon graduation.
- Chemistry Pre-Pharmacy: This track is primarily tailored for those planning to pursue a pharmacy degree.
- Chemistry-Biology Dual Degree: This track is tailored for those who are planning to pursue medicine and graduate studies in biomedical sciences.
- Chemistry Forensic: The forensic track is aimed at those who wish to pursue a career in a forensic laboratory. Graduates can also pursue graduate school or pursue a career as a laboratory scientist, environmental scientist, or teacher.

CHEMISTRY MINOR

Students planning to pursue graduate studies in biological and agricultural sciences can benefit from a minor in Chemistry. Students who plan to teach science at the high school level can also benefit from a minor in Chemistry.

DEGREE REQUIREMENTS

MAJOR REQUIREMENTS

It is very important for new and transfer students who elect Chemistry as a major to contact the Chemistry major program advisor for advisement immediately after declaring this major.

It is recommended that Chemistry majors planning to pursue graduate work in chemistry have adequate experience in research, and the Chemistry Program has courses to help meet this requirement. Having a clear goal of a particular area of interest is also important, and discussions with your advisor and other Chemistry faculty are essential in this process. It is important to focus on identifying and getting into a graduate program that aligns with your career goals and need. Courses in applied mathematics and computer science and as many upper division courses in chemistry and physics as the student's schedule will permit are also highly recommended.

CHEMISTRY TRACK (68-69 CREDIT HOURS)

Required Courses (63-64 credit hours)

Course	Course Title	Credits	Term Offered
CH102	GENERAL CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH102L	GENERAL CHEMISTRY LABORATORY	1	FALL ONLY/ ALL YEARS
CH103	GENERAL CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH103L	GENERAL CHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS
CH310A	ORGANIC CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH310B	ORGANIC CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH311	BASIC LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	FALL ONLY/ ALL YEARS
CH312	LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	SPRING ONLY/ ALL YEARS
CH330	QUANTITATIVE ANALYSIS	3	FALL ONLY/ ODD YEARS
CH330L	QUANTITATIVE ANALYSIS LABORATORY	2	FALL ONLY/ ODD YEARS
CH410	INSTRUMENT METHODS OF ANALYSIS	3	SPRING ONLY/ EVEN YEARS
CH410L	INSTRUMENT MTHDS OF ANALYS LAB	2	SPRING ONLY/ EVEN YEARS
CH450A	PHYSICAL CHEMISTRY	4	FALL ONLY/ EVEN YEARS
CH450B	PHYSICAL CHEMISTRY	4	SPRING ONLY/ ODD YEARS
CH451	PHYSICAL CHEMISTRY I LABORATORY	2	SPRING ONLY/ ODD YEARS
CH491	CHEMISTRY SEMINAR	1 - 2	FALL/SPRING/ ALL YEARS
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
MA204	CALCULUS II	5	FALL/SPRING/ ALL YEARS
MA205	MULTIVARIABLE CALCULUS	4	FALL/SPRING/ ALL YEARS
PH210	INTRODUCTORY PHYSICS LABORATORY	1	FALL ONLY/ ALL YEARS
PH211	INTRODUCTORY PHYSICS LABORATORY	1	SPRING ONLY/ ALL YEARS
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ ALL YEARS
PH252	UNIVERSITY PHYSICS	4	SPRING ONLY/ ALL YEARS

Elective Courses (5 credit hours)

Any upper division Chemistry (CH) courses or program-approved courses.

CHEMISTRY PRE-PHARMACY TRACK (86-88 CREDIT HOURS)

Required Courses (82-84 credit hours)

Course	Course Title	Credits	Term Offered
CH102	GENERAL CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH102L	GENERAL CHEMISTRY LABORATORY	1	FALL ONLY/ ALL YEARS
CH103	GENERAL CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH103L	GENERAL CHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS
CH310A	ORGANIC CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH310B	ORGANIC CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH311	BASIC LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	FALL ONLY/ ALL YEARS
CH312	LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	SPRING ONLY/ ALL YEARS
CH330	QUANTITATIVE ANALYSIS	3	FALL ONLY/ ODD YEARS
CH330L	QUANTITATIVE ANALYSIS LABORATORY	2	FALL ONLY/ ODD YEARS
CH350	FOUNDATIONS OF PHYSICAL CHEMISTRY	3	FALL ONLY/ EVEN YEARS
CH350L	Foundations of Physical Chemistry LABORATORY	1	FALL ONLY/ EVEN YEARS
CH419	BIOCHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH419L	BIOCHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS
CH491	CHEMISTRY SEMINAR	1 - 2	FALL/SPRING/ ALL YEARS
BI124	HUMAN ANATOMY AND PHYSIOLOGY I	3	FALL ONLY/ ALL YEARS
BI124L	HUMAN ANATOMY & PHYSIOLOGY I LABORATORY	1	FALL ONLY/ ALL YEARS
BI125	HUMAN ANATOMY & PHYSIOLOGY II	3	SPRING ONLY/ ALL YEARS
BI125L	HUMAN ANATOMY & PHYSIO II LABORATORY	1	SPRING ONLY/ ALL YEARS
BI157	PRINCIPLES OF BIOLOGY I	3	SPRING ONLY/ ALL YEARS
BI157L	PRINCIPLES OF BIOLOGY I LABORATORY	1	SPRING ONLY/ ALL YEARS
BI158	PRINCIPLES OF BIOLOGY II	3	FALL ONLY/ ALL YEARS
BI158L	PRINCIPLES OF BIOLOGY II LABORATORY	1	FALL ONLY/ ALL YEARS
BI225	BASIC MICROBIOLOGY	3	FALL ONLY/ ALL YEARS
BI225L	BASIC MICROBIOLOGY LABORATORY	1	FALL ONLY/ ALL YEARS

Course	Course Title	Credits	Term Offered
BI315	GENERAL GENETICS	3	FALL ONLY/ ALL YEARS
BI315L	GENERAL GENETICS LABORATORY	1	FALL ONLY/ ALL YEARS
BI416	CELLULAR & MOLECULAR BIOLOGY	3	SPRING ONLY/ ALL YEARS
BI416L	CELLULAR & MOLECULAR BIOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
PH210	INTRODUCTORY PHYSICS LABORATORY	1	FALL ONLY/ ALL YEARS
PH211	INTRODUCTORY PHYSICS LABORATORY	1	SPRING ONLY/ ALL YEARS
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ ALL YEARS
PH252	UNIVERSITY PHYSICS	4	SPRING ONLY/ ALL YEARS
NU207B	PHARMACOLOGY IN NURSING	2	SPRING ONLY/ ALL YEARS

Choice of (5-6 credit hours):

Course	Course Title	Credits	Term Offered
MA161A	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA161B	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA165	PRECALCULUS	5	FALL/SPRING/ ALL YEARS

Elective Courses (4 credit hours)

Any upper division Chemistry (CH) or Biology (BI) courses.

General Education (Recommended Courses)

Course	Course Title	Credits	Term Offered
CT101	CRITICAL THINKING	3	FALL/SPRING/ ALL YEARS
PY101	GENERAL PSYCHOLOGY	3	FALL/SPRING/ ALL YEARS
SO101	INTRODUCTION TO SOCIOLOGY	3	FALL/SPRING/ ALL YEARS
BA110	PRINCIPLES OF ECONOMICS	3	FALL/SPRING/ ALL YEARS
EN110	FRESHMAN COMPOSITION	3	FALL/SPRING/ ALL YEARS
EN111	WRITING FOR RESEARCH	3	FALL/SPRING/ ALL YEARS
CO210	FUNDAMENTALS OF COMMUNICATION	3	FALL/SPRING/ ALL YEARS
MA151	INTRODUCTORY STATISTICS	3	FALL/SPRING/ ALL YEARS

CHEMISTRY FORENSIC TRACK (87-88 CREDIT HOURS)

Required Courses (84-85 credit hours)

Course	Course Title	Credits	Term Offered
CH102	GENERAL CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH102L	GENERAL CHEMISTRY LABORATORY	1	FALL ONLY/ ALL YEARS
CH103	GENERAL CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH103L	GENERAL CHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS
CH310A	ORGANIC CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH310B	ORGANIC CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH311	BASIC LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	FALL ONLY/ ALL YEARS
CH312	LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	SPRING ONLY/ ALL YEARS
CH330	QUANTITATIVE ANALYSIS	3	FALL ONLY/ ODD YEARS
CH330L	QUANTITATIVE ANALYSIS LABORATORY	2	FALL ONLY/ ODD YEARS
CH350	FOUNDATIONS OF PHYSICAL CHEMISTRY	3	FALL ONLY/ EVEN YEARS
CH350L	Foundations of Physical	1	FALL ONLY/ EVEN YEARS

Course	Course Title	Credits	Term Offered
	Chemistry LABORATORY		
CH410	INSTRUMENT METHODS OF ANALYSIS	3	SPRING ONLY/ EVEN YEARS
CH410L	INSTRUMENT MTHDS OF ANALYS LAB	2	SPRING ONLY/ EVEN YEARS
CH413	FORENSIC CHEMISTRY	3	SPRING ONLY/ EVEN YEARS
CH413L	FORENSIC CHEMISTRY LABORATORY	1	
CH419	BIOCHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH419L	BIOCHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS
CH491	CHEMISTRY SEMINAR	1 - 2	FALL/SPRING/ ALL YEARS
CH498	CHEMISTRY INTERNSHIP	1 - 3	
BI157	PRINCIPLES OF BIOLOGY I	3	SPRING ONLY/ ALL YEARS
BI157L	PRINCIPLES OF BIOLOGY I LABORATORY	1	SPRING ONLY/ ALL YEARS
BI158	PRINCIPLES OF BIOLOGY II	3	FALL ONLY/ ALL YEARS
BI158L	PRINCIPLES OF BIOLOGY II LABORATORY	1	FALL ONLY/ ALL YEARS
BI315	GENERAL GENETICS	3	FALL ONLY/ ALL YEARS
BI315L	GENERAL GENETICS LABORATORY	1	FALL ONLY/ ALL YEARS

Course	Course Title	Credits	Term Offered
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
MA387	STATISTICS FOR SCIENCES	3	FALL ONLY/ ALL YEARS
MA387L	STATISTICS FOR SCIENCE LABORATORY	1	FALL ONLY/ ALL YEARS
PH210	INTRODUCTORY PHYSICS LABORATORY	1	FALL ONLY/ ALL YEARS
PH211	INTRODUCTORY PHYSICS LABORATORY	1	SPRING ONLY/ ALL YEARS
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ ALL YEARS
PH252	UNIVERSITY PHYSICS	4	SPRING ONLY/ ALL YEARS
LW101	INTRODUCTION TO CRIMINAL JUSTICE	3	FALL/SPRING/ ALL YEARS
LW202	TRIAL AND EVIDENCE	3	FALL/SPRING/ ALL YEARS
LW306	CRIMINAL LAW	3	FALL/SPRING/ ALL YEARS

Elective Courses (3 credit hours)

Upper division elective in Chemistry or Biology courses

CHEMISTRY/BIOLOGY DUAL DEGREE TRACK (93-94 CREDIT HOURS)

Required Courses (84-85 credit hours)

Course	Course Title	Credits	Term Offered
CH102	GENERAL CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH102L	GENERAL CHEMISTRY LABORATORY	1	FALL ONLY/ ALL YEARS
CH103	GENERAL CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH103L	GENERAL CHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS
CH310A	ORGANIC CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH310B	ORGANIC CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH311	BASIC LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	FALL ONLY/ ALL YEARS
CH312	LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	SPRING ONLY/ ALL YEARS
CH330	QUANTITATIVE ANALYSIS	3	FALL ONLY/ ODD YEARS
CH330L	QUANTITATIVE ANALYSIS LABORATORY	2	FALL ONLY/ ODD YEARS
CH350	FOUNDATIONS OF PHYSICAL CHEMISTRY	3	FALL ONLY/ EVEN YEARS
CH350L	Foundations of Physical Chemistry LABORATORY	1	FALL ONLY/ EVEN YEARS
CH410	INSTRUMENT METHODS OF ANALYSIS	3	SPRING ONLY/ EVEN YEARS
CH410L	INSTRUMENT MTHDS OF ANALYS LAB	2	SPRING ONLY/ EVEN YEARS
CH419	BIOCHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH419L	BIOCHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS
CH491	CHEMISTRY SEMINAR	1 - 2	FALL/SPRING/ ALL YEARS
BI157	PRINCIPLES OF BIOLOGY I	3	SPRING ONLY/ ALL YEARS
BI157L	PRINCIPLES OF BIOLOGY I LABORATORY	1	SPRING ONLY/ ALL YEARS
BI158	PRINCIPLES OF BIOLOGY II	3	FALL ONLY/ ALL YEARS
BI158L	PRINCIPLES OF BIOLOGY II LABORATORY	1	FALL ONLY/ ALL YEARS
BI225	BASIC MICROBIOLOGY	3	FALL ONLY/ ALL YEARS
BI225L	BASIC MICROBIOLOGY LABORATORY	1	FALL ONLY/ ALL YEARS
BI310	EVOLUTION	3	SPRING ONLY/ ALL YEARS
BI315	GENERAL GENETICS	3	FALL ONLY/ ALL YEARS

Course	Course Title	Credits	Term Offered
BI315L	GENERAL GENETICS LABORATORY	1	FALL ONLY/ ALL YEARS
BI410	ECOLOGY	3	SPRING ONLY/ ALL YEARS
BI410L	ECOLOGY LABORATORY	2	SPRING ONLY/ ALL YEARS
BI412	BIOMETRICS	3	FALL ONLY/ ALL YEARS
BI412L	BIOMETRICS LABORATORY	1	FALL ONLY/ ALL YEARS
BI416	CELLULAR & MOLECULAR BIOLOGY	3	SPRING ONLY/ ALL YEARS
BI416L	CELLULAR & MOLECULAR BIOLOGY LABORATORY	1	SPRING ONLY/ ALL YEARS
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
PH210	INTRODUCTORY PHYSICS LABORATORY	1	FALL ONLY/ ALL YEARS
PH211	INTRODUCTORY PHYSICS LABORATORY	1	SPRING ONLY/ ALL YEARS
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ ALL YEARS
PH252	UNIVERSITY PHYSICS	4	SPRING ONLY/ ALL YEARS

Elective Courses (9 credit hours)

Five credit hours of upper division Chemistry (CH) courses and any four credit hours of upper division Biology (BI) courses.

MINOR REQUIREMENTS

CHEMISTRY MINOR (33-35 CREDIT HOURS)

Required Courses (29-31 credit hours)

Course	Course Title	Credits	Term Offered
CH102	GENERAL CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH102L	GENERAL CHEMISTRY LABORATORY	1	FALL ONLY/ ALL YEARS
CH103	GENERAL CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH103L	GENERAL CHEMISTRY LABORATORY	1	SPRING ONLY/ ALL YEARS
CH310A	ORGANIC CHEMISTRY	3	FALL ONLY/ ALL YEARS
CH310B	ORGANIC CHEMISTRY	3	SPRING ONLY/ ALL YEARS
CH311	BASIC LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	FALL ONLY/ ALL YEARS
CH312	LABORATORY TECHNIQUES IN ORGANIC CHEMISTRY	2	SPRING ONLY/ ALL YEARS
CH330	QUANTITATIVE ANALYSIS	3	FALL ONLY/ ODD YEARS
CH330L	QUANTITATIVE ANALYSIS LABORATORY	2	FALL ONLY/ ODD YEARS
CH491	CHEMISTRY SEMINAR	1 - 2	FALL/SPRING/ ALL YEARS

Choice of (5-6 credit hours):

Course	Course Title	Credits	Term Offered
MA161A	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA161B	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA165	PRECALCULUS	5	FALL/SPRING/ ALL YEARS

Elective Courses (4 credit hours)

Any upper division Chemistry (CH) course(s).

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COMPUTER SCIENCE PROGRAM

PROSPECTUS

The Bachelor of Science in Computer Science provides students with the educational background necessary to pursue professional careers in the wide variety of positions in which computer science is required or to continue their education toward advanced degrees in computer science or related area.

Students may obtain a Bachelor of Science in Computer Science through one of the following paths:

1) Complete the two-year Associate of Science in Computer Science - UOG Track degree at Guam Community College followed by two years in the Computer Science program at UOG or

2) Complete the full four-year Computer Science program at UOG, starting as a pre-Computer Science major until all general education and prerequisite courses are completed.

Note: *Computer Science majors under previous Catalog years who remain continuously enrolled have until May 2029 to complete their program requirements and should*

seek advisement from the CNAS Dean's Office to ensure they are taking all remaining requirements to complete the program. For more information, contact Katrina Quinata at (671) 735-0317 or Interim Associate Dean Kate Moots at (671) 735-2006.

PROGRAM EDUCATIONAL OBJECTIVES

Within a few years of graduation, graduates of the Computer Science program are expected to:

1. Successfully apply their problem-solving skills to advance software development in a variety of domains.
2. Successfully apply technical knowledge to innovate and bring forth transformational change for metropolitan, regional, and global well-being.
3. Demonstrate responsible leadership in the development of software/computing technologies to solve real-world problems in diverse communities.
4. Demonstrate lifelong learning and professional growth via advanced study, career advancement, or social contributions.

LEARNING OUTCOMES

The Computer Science program enables students to achieve the following outcomes by the time of graduation:

1. Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Apply computer science theory and software development fundamentals to produce computing-based solutions.

DEGREE REQUIREMENTS

MAJOR REQUIREMENTS

All students intending to declare Computer Science as their major must have a cumulative GPA of at least 2.5 prior to entering the program. In addition, all students intending to declare a Computer Science major will be required to take CS280 Programming Lab Practicum in the summer prior to starting Year 3. This admission requirement may be waived if a student passes the Exam in Programming Proficiency. Once admitted into the program, new students should see the Division of Mathematics & Computer Science administrative assistant.

Computer Science majors must receive a "C" or better and maintain a 2.5 GPA for all courses required of this major.

The required courses, electives, and suggested General Education courses are detailed below.

PATHWAY: ASSOCIATE OF SCIENCE IN COMPUTER SCIENCE UOG TRACK FROM GCC (15-16 CREDIT HOURS)

Students who complete their Associate of Science in Computer Science - UOG Track at Guam Community College as their first two years of the Computer Science program will have met their General Education requirements for graduation from UOG as well as their basic programming and computer networking coursework.

Students should also try to complete MA161A/B College Algebra & Trigonometry OR MA165 Precalculus while at GCC. Otherwise, it is recommended to take these courses during the summer prior to entering UOG for Year 3 of the program as the prerequisite for MA203 Calculus I.

Required Courses (11-12 credit hours)

If not completed at GCC

Course	Course Title	Credits	Term Offered
MA161A	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA161B	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA165	PRECALCULUS	5	FALL/SPRING/ ALL YEARS
CS271	DISCRETE STRUCTURES	3	FALL ONLY/ ALL YEARS
BA230	DATA PROCESSING AND DATA ADMINISTRATION WITH MAC APPLICATION	3	FALL ONLY/ ODD YEARS

Required Admission Courses (0-3 credit hours)

Course	Course Title	Credits	Term Offered
CS280	PROGRAMMING PRACTICUM	4	FALL ONLY/ ALL YEARS

Proposed UOG Curriculum Guide for GCC Transfers (64 credit hours)

The recommended sequencing of course for students transferring from GCC is outlined below:

BRIDGE PROGRAM (Summer)

Choose one of the following:

Course	Course Title	Credits	Term Offered
MA161A	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA161B	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS

OR

Course	Course Title	Credits	Term Offered
MA165	PRECALCULUS	5	FALL/SPRING/ ALL YEARS

Take CS-280 if you failed in Examination in Programming Proficiency

Course	Course Title	Credits	Term Offered
CS280	PROGRAMMING PRACTICUM	4	FALL ONLY/ ALL YEARS

JUNIOR YEAR (First Year at UOG)

Fañuchånan (Aug.-Dec.) (16 credit hours)

Course	Course Title	Credits	Term Offered
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
MA387	STATISTICS FOR SCIENCES	3	FALL ONLY/ ALL YEARS
MA387L	STATISTICS FOR SCIENCE LABORATORY	1	FALL ONLY/ ALL YEARS
CS271	DISCRETE STRUCTURES	3	FALL ONLY/ ALL YEARS
CS373	DATA STRUCTURES & ALGORITHMS	4	SPRING ONLY/ ALL YEARS

Fañomnåkan (Jan.-May) (17 credit hours)

Course	Course Title	Credits	Term Offered
MA204	CALCULUS II	5	FALL/SPRING/ ALL YEARS
CS375	COMPUTER ORGANIZATION AND ARCHITECTURE	3	SPRING ONLY/ ALL YEARS
CS377	DATABASE DESIGN AND IMPLEMENTATION	3	FALL ONLY/ ALL YEARS

and CS-XXX Elective 1

SENIOR YEAR (Second Year at UOG)

Fañuchånan (Aug.-Dec.) (17 credit hours)

Course	Course Title	Credits	Term Offered
CS383	ORGANIZATION OF PROGRAMMING LANGUAGES	3	FALL ONLY/ ALL YEARS
CS385	INTRODUCTION TO OPERATING SYSTEM	3	FALL ONLY/ ALL YEARS
CS477	SOFTWARE ENGINEERING	3	FALL ONLY/ ALL YEARS
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ ALL YEARS
PH210	INTRODUCTORY PHYSICS LABORATORY	1	FALL ONLY/ ALL YEARS

and CS-XXX Elective 2

Fañomnåkan (Jan.-May) (14 credit hours)

Course	Course Title	Credits	Term Offered
CS485	DATA COMMUNICATIONS AND NETWORKING	3	FALL ONLY/ ALL YEARS
PH252	UNIVERSITY PHYSICS	4	SPRING ONLY/ ALL YEARS
PH211	INTRODUCTORY PHYSICS LABORATORY	1	SPRING ONLY/ ALL YEARS

and CS-XXX Elective 3

PATHWAY: PRE-COMPUTER SCIENCE AT UOG (63-64 CREDIT HOURS)

Students who wish to begin the Computer Science program at UOG as Pre-Computer Science majors will need to pass the following courses, in addition to the following General Education requirements: MA161A/B College Algebra & Trigonometry or MA165 Precalculus; CS201 Programming I; CS202 Programming II; CS271 Discrete Structures; BA230 Data Processing & Data Administration with Mac Application.

Required Courses (19-20 credit hours)

Course	Course Title	Credits	Term Offered
CS201	PROGRAMMING I	4	FALL/SPRING/ ALL YEARS
CS202	PROGRAMMING II	4	FALL/SPRING/ ALL YEARS
CS271	DISCRETE STRUCTURES	3	FALL ONLY/ ALL YEARS
BA230	DATA PROCESSING AND DATA ADMINISTRATION WITH MAC APPLICATION	3	FALL ONLY/ ODD YEARS

Choose one of the following:

Course	Course Title	Credits	Term Offered
MA161A	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS
MA161B	COLLEGE ALGEBRA AND TRIGONOMETRY	3	FALL/SPRING/ ALL YEARS

OR

Course	Course Title	Credits	Term Offered
MA165	PRECALCULUS	5	FALL/SPRING/ ALL YEARS

General Education Courses (41 credit hours)

See CNAS Academic Adviser Ms. Katrina Quinata (quinatak@triton.uog.edu).

Required Admission Courses (0-3 credit hours)

Course	Course Title	Credits	Term Offered
CS280	PROGRAMMING PRACTICUM	4	FALL ONLY/ ALL YEARS

COMPUTER SCIENCE (63 CREDIT HOURS)

> **Note**: These course are required for both Pathways.

Required Courses (52 credit hours)

Course	Course Title	Credits	Term Offered
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
MA204	CALCULUS II	5	FALL/SPRING/ ALL YEARS
MA387	STATISTICS FOR SCIENCES	3	FALL ONLY/ ALL YEARS
MA387L	STATISTICS FOR SCIENCE LABORATORY	1	FALL ONLY/ ALL YEARS
PH210	INTRODUCTORY PHYSICS LABORATORY	1	FALL ONLY/ ALL YEARS
PH211	INTRODUCTORY PHYSICS LABORATORY	1	SPRING ONLY/ ALL YEARS
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ ALL YEARS
PH252	UNIVERSITY PHYSICS	4	SPRING ONLY/ ALL YEARS
CS373	DATA STRUCTURES & ALGORITHMS	4	SPRING ONLY/ ALL YEARS
CS375	COMPUTER ORGANIZATION AND ARCHITECTURE	3	SPRING ONLY/ ALL YEARS
CS377	DATABASE DESIGN AND IMPLEMENTATION	3	FALL ONLY/ ALL YEARS
CS383	ORGANIZATION OF PROGRAMMING LANGUAGES	3	FALL ONLY/ ALL YEARS
CS385	INTRODUCTION TO OPERATING SYSTEM	3	FALL ONLY/ ALL YEARS
CS477	SOFTWARE ENGINEERING	3	FALL ONLY/ ALL YEARS
CS485	DATA COMMUNICATIONS AND NETWORKING	3	FALL ONLY/ ALL YEARS

Elective Courses (8 credit hours)

> Choose electives from the following:

Course	Course Title	Credits	Term Offered
CS420	COMPUTER & NETWORK SECURITY	3	FALL ONLY/ ALL YEARS
CS431	ADVANCED TOPICS IN COMPUTING	3	FALL ONLY/ ALL YEARS
CS498	COMPUTER SCIENCE INTERNSHIP	4	SPRING ONLY/ ALL YEARS
MA341	LINEAR ALGEBRA	3	FALL/SPRING/ ALL YEARS
MA375	NUMERICAL METHODS AND SOFTWARE	3	SPRING ONLY/ ODD YEARS
BA330	INFORMATION TECHNOLOGY AND NETWORKS FOR BUSINESS	3	FALL/SPRING/ ALL YEARS
BA335	CYBERSECURITY AND CLOUD SERVICE	3	FALL/SPRING/ ALL YEARS

Required Admission Courses (0-3 credit hours)

Course	Course Title	Credits	Term Offered
CS280	PROGRAMMING PRACTICUM	4	FALL ONLY/ ALL YEARS

MINOR REQUIREMENTS (41 CREDIT HOURS)

The Computer Science minor program is intended to provide students majoring in other disciplines, especially those in the sciences, with a broad exposure to computer science. The minor will benefit both graduate school-bound students and students headed for an information technology intensive workplace.

Required Courses (32 credit hours)

Course	Course Title	Credits	Term Offered
CS200	COMPUTER APPLICATIONS	3	FALL/SPRING/ ALL YEARS
CS201	PROGRAMMING I	4	FALL/SPRING/ ALL YEARS
CS202	PROGRAMMING II	4	FALL/SPRING/ ALL YEARS
CS303	DATA STRUCTURES AND ALGORITHM ANALYSIS	3	FALL/SPRING/ ALL YEARS
CS315	INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS	3	SPRING ONLY/ ALL YEARS
CS360	INTRODUCTION TO OPERATING SYSTEMS	3	FALL ONLY/ ALL YEARS
CS403	DATA COMMUNICATION & COMPUTER NETWORKS	4	SPRING ONLY/ ALL YEARS
CS492	PRACTICUM IN COMPUTER SCIENCE	3	FALL/SPRING/ ALL YEARS
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS

Elective Courses (9 credit hours)

Select nine credit hours from the following courses:

Course	Course Title	Credits	Term Offered
CS305	ASSEMBLY LANGUAGE AND COMPUTER ORGANIZATION	3	FALL ONLY/ ALL YEARS
CS365	COMPUTER ARCHITECTURE	3	SPRING ONLY/ ALL YEARS
CS380	ORG OF PROGRAMMING LANGUAGES	3	FALL ONLY/ ALL YEARS
CS431	ADVANCED TOPICS IN COMPUTING	3	FALL ONLY/ ALL YEARS
MA151	INTRODUCTORY STATISTICS	3	FALL/SPRING/ ALL YEARS
MA204	CALCULUS II	5	FALL/SPRING/ ALL YEARS
MA341	LINEAR ALGEBRA	3	FALL/SPRING/ ALL YEARS
MA351	DISCRETE STRUCTURES	3	SPRING ONLY/ ALL YEARS
MA385	APPLIED STATISTICS	3	FALL/SPRING/ ALL YEARS
MA411	INTRODUCTION TO ABSTRACT ALGEBRA I	3	FALL ONLY/ ALL YEARS
MA451	INTRODUCTION TO PROBABILITY THEORY	3	FALL ONLY/ EVEN YEARS
MA460	NUMERICAL LINEAR ALGEBRA	3	AS REQUIRED
PH210	INTRODUCTORY PHYSICS LABORATORY	1	FALL ONLY/ ALL YEARS
PH211	INTRODUCTORY PHYSICS LABORATORY	1	SPRING ONLY/ ALL YEARS
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ ALL YEARS
PH252	UNIVERSITY PHYSICS	4	SPRING ONLY/ ALL YEARS

Note: MA-151 fulfills the General Education requirements.

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MATHEMATICS PROGRAM

PROSPECTUS

The Mathematics major and minor programs are designed to:

1. Prepare secondary school mathematics teachers;
2. Prepare students for other employment requiring the use of mathematics; and
3. Provide an understanding of the fundamental quantitative considerations, symbolized mathematically, which underlie our mechanized society.

Additional requirements for a Mathematics major leading to a general secondary teaching credential are listed in the Secondary Education program. A student must declare a double major in Mathematics and Secondary Education for a secondary teaching degree.

PROGRAM LEARNING OUTCOMES

Students completing the Mathematics Program at UOG will:

1. Demonstrate critical thinking, problem-solving skills and ability to use mathematical methods by identifying, evaluating, classifying, analyzing, synthesizing data and abstract ideas in various contexts and situations.
2. Exhibit a sound conceptual understanding of the nature of mathematics, and demonstrate advanced mathematical skills in mathematical analysis, modern algebra and other mathematical discipline(s).
3. Argue and reason using mathematics, read, create and write down logically correct mathematical proofs, use exact mathematical language and communicate mathematics efficiently orally, in writing and using information technology tools.
4. Apply abstract thinking, mathematical methods, models and current practices in the sciences, including state-of-the-art mathematical software, to solve problems in theoretical mathematics or in a diverse area of mathematical applications.
5. Show maturity in mathematical knowledge and thinking that prepares and encourages students to pursue graduate studies in mathematics or in related fields.
6. Demonstrate an appreciation of and enthusiasm for inquiry, learning and creativity in mathematical sciences, a sense of exploration that enables them to pursue lifelong learning and up-to-date professional expertise in their careers through various areas of jobs, including governmental, business or industrial jobs in mathematics, related sciences, education or technology.

DEGREE REQUIREMENTS

MAJOR REQUIREMENTS (59 CREDIT HOURS)

> Mathematics majors must complete studies with a cumulative GPA of 2.3 in the courses specified as required courses for the major.

Required Courses (47 credit hours)

Course	Course Title	Credits	Term Offered
PH251	UNIVERSITY PHYSICS	4	FALL ONLY/ ALL YEARS
PH252	UNIVERSITY PHYSICS	4	SPRING ONLY/ ALL YEARS
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
MA204	CALCULUS II	5	FALL/SPRING/ ALL YEARS
MA205	MULTIVARIABLE CALCULUS	4	FALL/SPRING/ ALL YEARS
MA302	FOUNDATIONS OF HIGHER MATHEMATICS	3	SPRING ONLY/ ALL YEARS
MA341	LINEAR ALGEBRA	3	FALL/SPRING/ ALL YEARS
MA411	INTRODUCTION TO ABSTRACT ALGEBRA I	3	FALL ONLY/ ALL YEARS
MA412	INTRODUCTION TO ALGEBRA II	3	SPRING ONLY/ ALL YEARS
MA421	INTRODUCTION TO ANALYSIS I	3	FALL ONLY/ ALL YEARS
MA422	INTRODUCTION TO ANALYSIS II	3	SPRING ONLY/ ALL YEARS
MA301	DIFFERENTIAL EQUATIONS	3	SPRING ONLY/ ALL YEARS

Choose one of the following:

Course	Course Title	Credits	Term Offered
CS201	PROGRAMMING I	4	FALL/SPRING/ ALL YEARS
CS202	PROGRAMMING II	4	FALL/SPRING/ ALL YEARS

Electives (12 credit hours)

A minimum of 12 credit hours of upper division Mathematics (MA) courses in addition to those already required.

MINOR REQUIREMENTS (29 CREDIT HOURS)

Required Courses (17 credit hours)

Course	Course Title	Credits	Term Offered
MA203	CALCULUS I	5	FALL/SPRING/ ALL YEARS
MA204	CALCULUS II	5	FALL/SPRING/ ALL YEARS
MA205	MULTIVARIABLE CALCULUS	4	FALL/SPRING/ ALL YEARS
MA302	FOUNDATIONS OF HIGHER MATHEMATICS	3	SPRING ONLY/ ALL YEARS

Elective Courses (12 credit hours)

A minimum of 6 credit hours of upper division Mathematics (MA) courses in addition to:

Course	Course Title	Credits	Term Offered
MA302	FOUNDATIONS OF HIGHER MATHEMATICS	3	SPRING ONLY/ ALL YEARS

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MILITARY SCIENCE PROGRAM

PROSPECTUS

The University of Guam's Senior Reserve Officers' Training Corps (ROTC) program's mission is to commission the future officer leadership of the U.S. Army. Army ROTC is an educational program designed to provide the college student an opportunity to earn an Army commission as a second lieutenant while completing the University requirements for a bachelor's degree. The program provides leadership training that will develop the skills and attitudes vital to the professional Army officer. Upon successful completion of the program and graduation from the University, SROTC cadets are commissioned as second lieutenants and enter either the active Army, Army Reserve, or Army National Guard component.

A minor in Military Science prepares students enrolled in the Army ROTC program for various government and civilian career paths. Our program promotes individual fitness as well as teamwork and provides numerous leadership learning opportunities. Practical exercises, leadership vignettes, and hands-on military-style training complement the academic study of warfare and diplomacy. The coursework emphasizes leadership, the Army's heritage, dynamic problem solving, decision-making skills, and effective communication techniques characterized within the complexities of modern conflicts. The Military Science minor is designed for students who are interested in serving as officers in the U.S. Army.

FINANCIAL ASSISTANCE

In addition to financial aid available at UOG, the Army ROTC program has two-, three-, and four-year scholarships available on a competitive basis for qualified applicants. A scholarship board is conducted annually in March for the following academic year. Recipients of campus scholarships are eligible to receive tuition, lab fees, and book expenses or room and board, depending on the scholarship awarded and what benefits the student elects. Contact the Department of Military Science at Dorm 1, second floor, for more information on the program and scholarship opportunities. More information about Army ROTC can be found at https://www.army.mil/rotc and https://www.goarmy.com/rotc.

TRACKS

MILITARY SCIENCE MINOR

Four-Year Program

The four-year program is divided into basic (100–200 level) and advanced (300–400) courses. There is no obligation incurred by the student while taking the basic-level courses unless the student chooses to commit by signing a contract after meeting the minimum requirements, including passing a fitness test and a Department of Defense Medical Examination Board exam and being academically aligned to graduate in four years.

Two-Year Program

A student may enter Army ROTC advanced courses during his or her junior year or as a graduate student by having completed a basic course equivalent and meeting the minimal requirements, including passing a fitness test and a Department of Defense Medical Examination Board exam and being academically aligned to graduate in two years.

DEGREE REQUIREMENTS

MILITARY SCIENCE MINOR REQUIREMENTS (29 CREDIT HOURS)

Eligibility

Any full-time student may take a lower-level Military Science course at no cost to the student registering in the same manner as any other undergraduate or graduate course. However, to qualify for enrollment as a ROTC cadet in the program leading to a commission, a student must meet the following requirements:

- Be a U.S. citizen prior to commissioning.
- Be at least 17 years of age with consent at time of contracting and no more than 35 years of age at time of commissioning.
- Be a full-time student at UOG, Guam Community College, or a combination of the two.
- Not be convicted of felony.
- Be approved by the Professor of Military Science.

FOUR-YEAR PROGRAM (FOR FRESHMEN)

Required Courses (26 credit hours)

Course	Course Title	Credits	Term Offered
MSL101	INTRODUCTION TO THE ARMY AND CRITICAL THINKING	2	FALL ONLY/ ALL YEARS
MSL102	FOUNDATIONS OF AGILE AND ADAPTIVE LEADERSHIP	2	SPRING ONLY/ ALL YEARS
MSL201	LEADERSHIP AND DECISION MAKING	2	FALL ONLY/ ALL YEARS
MSL202	ARMY DOCTRINE AND TEAM DEVELOPMENT	2	SPRING ONLY/ ALL YEARS
MSL301	TRAINING MANAGEMENT AND THE WAR-FIGHTING FUNCTIONS	3	FALL ONLY/ ALL YEARS
MSL302	APPLIED LEADERSHIP IN SMALL UNIT OPERATIONS	3	SPRING ONLY/ ALL YEARS
MSL392	CADET LEADERSHIP COURSE	6	SUMMER/ ALL YEARS
MSL401	THE ARMY OFFICER	3	FALL ONLY/ ALL YEARS
MSL402	COMPANY GRADE LEADERSHIP	3	SPRING ONLY/ ALL YEARS

Elective Courses (3 credit hours)

Choice of:

Course	Course Title	Credits	Term Offered
HI306	MODERN AMERICAN MILITARY HISTORY	3	SPRING ONLY/ ALL YEARS

OR Any 300- or 400-level History course approved by the Professor of Military Science prior to taking the alternative course.

TWO-YEAR PROGRAM (FOR JUNIORS AND GRADUATE STUDENTS)

Students may pursue a minor using the below track if either of the following applies:

1. Undergraduate students who have earned or will earn 60 credit hours toward their degree by the conclusion of the current Fånomñakan (Jan.–May) semester, or graduate students who have been accepted into a two-year graduate program beginning in the Fånuchanan (Aug.–Dec.) semester. In addition, students must have completed MSL-292, a U.S. Army Cadet Command–sponsored course, in lieu of academic content of MSL-101, MSL-102, MSL-201, and MSL-202.
2. Undergraduate students who have transferred into UOG as juniors or graduate students who have been accepted into a two-year graduate program beginning in the Fånuchanan (Aug.–Dec.) semester. In addition, student veterans must have served honorably and have submitted an official Joint Service Transcript to the Office of Admissions & Records for transfer credit. Prior military service is considered an academic substitution for the content of MSL-101, MSL-102, MSL-201, and MSL-202 but is not considered a substitution for academic credit hours toward a Military Science Minor.

Required Courses (21 credit hours)

> All students in the two-year program will complete the following:

Course	Course Title	Credits	Term Offered
MSL301	TRAINING MANAGEMENT AND THE WAR-FIGHTING FUNCTIONS	3	FALL ONLY/ ALL YEARS
MSL302	APPLIED LEADERSHIP IN SMALL UNIT OPERATIONS	3	SPRING ONLY/ ALL YEARS
MSL392	CADET LEADERSHIP COURSE	6	SUMMER/ ALL YEARS
MSL401	THE ARMY OFFICER	3	FALL ONLY/ ALL YEARS
MSL402	COMPANY GRADE LEADERSHIP	3	SPRING ONLY/ ALL YEARS

Choice of:

Course	Course Title	Credits	Term Offered
HI306	MODERN AMERICAN MILITARY HISTORY	3	SPRING ONLY/ ALL YEARS

OR Any 300- or 400-level History course approved by the Professor of Military Science prior to taking the alternative course.

Elective Courses (8 credit hours)

To complete their minor requirements, these students will also earn an additional eight credit hours in MSL electives.

FACULTY

Division Chair

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PRE-PROFESSIONAL PROGRAMS

OVERVIEW

PRE-PROFESSIONAL PREPARATION

The University of Guam offers all courses that are required to attend post-graduate medical, optometry, dental, veterinary, and pharmacy schools, and these courses are as rigorous as courses in other accredited institutions. However, the University of Guam does not offer a "pre-medical major," etc. because most medical, optometry, dental, veterinary, and pharmacy schools prefer to consider candidates who have completed a subject area major. Therefore, those who plan to continue their studies in one of these areas should choose a subject area major. In addition, they should schedule:

- mathematics through Calculus
- one year of college or university physics
- one year of general biology, and
- two years of chemistry (through organic chemistry).

Courses such as quantitative analysis, biochemistry, cell physiology, genetics, and comparative anatomy are often recommended if scheduling permits.

Often, pre-professional students will choose to major in math or the sciences, but this is not necessary so long as the required courses are taken.

Prospective pre-professional students should realize that national examinations (the Medical College Aptitude Test, MCAT; the Optometry Admission Test, OAT; the Dental Aptitude Test, DAT; Pharmacy College Admission Test, PCAT; Graduate Record Examination, GRE) may be required. If these exams are required, it is recommended that students complete them during the second semester of your junior year. Required courses should be completed or in progress before these exams are scheduled in order to assure adequate scores.

Pre-Medical

Students planning to apply to medical school after UOG are advised to enter the of the Biology Program and to get involved with the UOG Pre-Medical Chapter of the American Medical Student Association. Pre-medical students can select other majors as well so long as the required courses are taken. Students should declare "pre-medical" along with their selected major for advisement purposes.

For additional information, contact CNAS advisor Katrina Quinata at quinatak@triton.uog.edu.

Pre-Dental

Students planning to apply to dental school after UOG are advised to enter the of the Biology Program and to get involved with the UOG Predental Student Association. Pre-dental students can select other majors as well so long as the required courses are taken. Students should declare "pre-dental" along with their selected major for advisement purposes.

For additional information, contact CNAS advisor Katrina Quinata at quinatak@triton.uog.edu.

Pre-Pharmacy

The University of Guam offers a pre-pharmacy program that leads directly to entrance in the School of Pharmacy at the University of Hawaii – Hilo. Pre-pharmacy students can declare any major so long as the required courses are taken. Students should declare "pre-pharmacy" along with their selected major for advisement purposes.

For additional information, contact CNAS advisor Katrina Quinata at quinatak@triton.uog.edu.

Pre-Optometry

The University of Guam participates in a special "Underserved in Sight" program with the Pacific University College of Optometry, and a special program for Pacific Island students is available. Pre-optometry students can declare any major so long as the required courses are taken. Students should declare "pre-optometry" along with their selected major for advisement purposes.

For additional information, contact CNAS advisor Katrina Quinata at quinatak@triton.uog.edu.

Pre-Veterinary

Those who are interested in veterinary medicine can complete basic science requirements at the University of Guam. However, there are very few schools of veterinary medicine and they are extremely selective. They usually require basic science in addition to agriculture courses in animal husbandry, animal nutrition, etc., and all have specific state residency requirements, which being a resident of Guam does not fulfill. Pre-veterinary students are encouraged to attend the University of Guam for two years, during which time basic science courses can be taken and appropriate catalogs studied.

Pre-veterinary students can declare any major so long as the required courses are taken. Students should declare "pre-veterinary" along with their selected major for advisement purposes.

For additional information, contact CNAS advisor Katrina Quinata at quinatak@triton.uog.edu.

ADVISEMENT

All students who plan to go to medical, optometry, dental, pharmacy, and veterinary schools are encouraged to seek advisement from CNAS advisor Katrina Quinata, regardless of their subject area. Inquiries from high school students and other Guam residents are welcomed.

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