

Department of Science and Mathematics

Faculty

Full-time Faculty

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partnership with JPU). Additionally, there is a minor in biology for those students in other majors desiring biology to accompany their chosen major. The Public Health Minor is also available in partnership with LCMC.

Biology majors are required to minor in chemistry and to take supporting physics and math courses. The focus of the biology major at Grace is to prepare students for graduate work in many areas of biology including anatomy, biochemistry, botany, genetics, microbiology, physiology and zoology, as well as providing general preparation for a health professions graduate program. This major also prepares students for a general career in an area of biological science, including laboratory work in medicine or chemistry, environmental careers, technical writing, pharmaceutical sales, or food science. Ecology and environmental biology have their own program of preparation at Grace.

The health science major provides a solid foundation in the biological and physical sciences, and is specifically designed for the pre-professional preparation of students preparing credentials for admission into the professional programs of dentistry, medicine, optometry, pharmacy, physician assistant, physical therapy, veterinary medicine, and other health-related fields. Students should meet with the health professions advisor as early as possible in their studies at Grace to increase the probability of effective and accurate course selection and to understand other facets of preparing to be a successful applicant to their chosen graduate health professions program.

Program Learning Outcomes

1. Successful biology students are able to synthesize solutions to real-world biological

Required Courses (24 hours):

NUT 500 Integrative and Functional Nutrition I
NUT 501 Integrative and Functional Nutrition II
LM 500 Lifestyle Medicine
SCI 601 Natural Medicine
SCI 604 Herbal Medicine
NUT 503 Diet, Genes and Nutrition
NUT 512 Nutrition for Mental Health
LM 507 Lifestyle Medicine Research Studies
NUT 590 Medical and Professional Ethics

Concentrations - choose one (12 hours) :

Lifestyle Medicine Concentration:

LM 501 Physical Activity and Weight Management
LM 502 Health and Wellness Coaching
LM 503 Sleep, Health and Wellness
LM 504 Mindfulness and Emotional Wellness
LM 505 Smoking and Tobacco Cessation Therapy
LM 506 Alcohol and Addiction Therapy

Nutrition Concentration:

NUT 502 Nutrition Assessment
NUT 514 Eating Disorders
GASTP 501 Gastronomy Science
NUT 510 Nutritional Psychology

Sports Medicine Concentration:

LM 501 Physical Activity and Weight Management
SCI 700 Exercise Physiology
SCI 701 Integrative Kinesiology
SCI 702 Fitness and Wellness
SCI 703 Sports and Exercise Nutrition
SCI 704 Sports Medicine and Athletic Training

NOTE: All course codes listed here are JPU designations and are subject to change. Coursework is completed entirely online at the time of this catalog printing. Course descriptions for JPU courses can be found [here](#). Additional fees may apply to partnership programs. For more information, please contact the Director of the School of Arts and Sciences Partnership Programs statoncg@grace.edu or the Biology Program Director.

*This program results in a Master of Science degree from John Patrick University along with a b D F K H O R U ¶ V degree from Grace College.

MAJORS AND MI0004iology

Required Science Courses (17 hours) :

BIO 1610/1620 General Biology I and Lab
BIO 1710/1720 General Biology II and Lab
BIO 3110 Cellular & Molecular Biology
BIO 4210 Genetics
BIO 4010 Senior Seminar

General Biology Concentration (22 hours)

ENV 2110/2120 General Ecology I and Lab
BIO 2210 Nutrition
BIO 2410/2420 Plant Biology and Lab
BIO 2510/2520 Animal Biology and Lab
BIO 3400 Development Biology
BIO 4110/4120 Microbiology and Lab

Neurobiology Concentration (25 hours)

PSY 2170 Abnormal Psychology
CHM 3610 Analytical & Environmental Chemistry
BIO 3210/3220 Advanced Anatomy & Physiology I and Lab
NSC 3110/NSM I Neuroscience Foundations
NSC 3120/NSM II Biological Basis of Perception & Movement
NSC 3130/NSM III Cognitive Neuroscience
NSC 3140/NSM IV Clinical Neuropathology
BIO 3710 Pathophysiology

Physical Science Concentration ±Choose One (4 hours))

PHY 2140/2150 College Physics I + Lab
PHY 2160/2170 College Physics II + Lab

Additional Math Requirement (4 hours)

MAT 1230/1240 Calculus I + Lab

Experimental Learning Requirement (3 hours)

BIO 29X0 Biology Internship
BIO 48X0 Research in Bio Science

NOTE: Course description for PSY can be found in the Department of Behavioral Science course listings. NSM courses are offered via partnership with LCMC and course descriptions can be found [here](#). Additional fees may apply to partnership programs. For more information, please contact the Director of Partnership Programs at staton@grace.edu.

HEALTH SCIENCE MAJOR

Bachelor of Science and Bachelor of Arts

The requirement for a degree in health science varies, with the core major requiring 48-49 credit hours, and the concentrations adding 8-18 credit hours. Many concentrations include a minor in chemistry; if this minor is not required, then another minor must be completed.

A health science major must also declare a concentration, which defines course choices and lists additional courses required for professional health science schools in that concentration, or are covered on the entrance examination for that field. The listing of courses required for each concentration is available from the Pre-Health Professions advisor, if desired. Available

PHY 2170 College Physics II Lab
BIO 3210/3220 Advanced Anatomy & Physiology I + lab
BIO 3310/3320 Advanced Anatomy & Physiology II + lab
BIO 4110/4120 Microbiology + lab

Choose One of These Course/Labs:

MAT 1230/1240 Calculus I + lab
MAT 3200 Probability and Statistics

Required Field Learning

Choose three credits from the following :

BIO 2850/60/70 Healthcare Observation ±1 credit each
BIO 2810/20/30 Healthcare Experience

MEDICINE CONCENTRATION (43 credit hours)

Required Science Courses:

BIO 1610 General Biology I
BIO 1620 General Biology I Lab
BIO 1710 General Biology II
BIO 1720 General Biology II Lab
BIO 2100 Health Science Seminar
ENV 2110 General Ecology
ENV 2120 General Ecology Lab
BIO 3110 Cell and Molecular Biology
BIO 4210 Genetics
BIO 4010 Senior Seminar

Choose one of the following :

BIO 3210/3220 Advanced Anatomy & Physiology I + lab
BIO 3310/3320 Advanced Anatomy & Physiology II + lab
BIO 4110/4120 Microbiology + lab

OPTOMETRY CONCENTRATION (45 credit hours)

Required Science Courses:

BIO 1610 General Biology I
BIO 1620 General Biology I Lab
BIO 1710 General Biology II
BIO 1720 General Biology II Lab
BIO 2100 Health Science Seminar
ENV 2110 General Ecology
ENV 2120 General Ecology Lab
BIO 3110 Cell and Molecular Biology
BIO 3210 Advanced Anatomy & Physiology I
BIO 3220 Advanced Anatomy & Physiology I lab
BIO 4110 Microbiology
BIO 4120 Microbiology Lab
BIO 4210 Genetics
BIO 4010 Senior Seminar

Required Mathematics/Physical Sciences:

PHY 2140 College Physics I
PHY 2150 College Physics I lab
PHY 2160 College Physics II
PHY 2170 College Physics II lab
MAT 1230 Calculus I
MAT 1240 Calculus Lab

Required Field Learning

Choose three credits from the following :

BIO 2850/60/70 Healthcare Observation ±1 credit each
BIO 2810/20/30 Healthcare Experience

OCCUPATIONAL THERAPY CONCENTRATION (45 credit hours)

Required Science Courses:

BIO 1610 General Biology I
BIO 1620 General Biology I Lab
BIO 1710 General Biology II
BIO 1720 General Biology II Lab
BIO 2100 Health Science Seminar
ENV 2110 General Ecology
ENV 2120 General Ecology Lab
BIO 1200 Medical Terminology
BIO 3210 Advanced Anatomy & Physiology I
BIO 3220 Advanced Anatomy & Physiology I lab
BIO 3310 Advanced Anatomy & Physiology II
BIO 3320 Advanced Anatomy & Physiology II lab
BIO 4210 Genetics
BIO 4010 Senior Seminar

Additional Required Courses:

MAT 3200 Probability and Statistics
PSY 1100 Introduction to Psychology
PSY 2170 Abnormal Psychology
PSY 2880 Life Span Development

Required Mathematics/Physical Sciences:

MAT 1230 Calculus I
MAT 1240 Calculus Lab
PHY 2140 College Physics I
PHY 2150 College Physics I lab

Choose one of the following:

PHY 2160/2170 College Physics II + lab
MAT 1250/1260 Calculus II + lab

Additional Required Course:

BUS 2230 Economics

Required Field Learning

Choose three credits from the following:

BIO 2850/60/70 Healthcare Observation ±1 credit each
BIO 2810/20/30 Healthcare Experience

PODIATRY CONCENTRATION (43 credit hours)

Required Science Courses:

BIO 1610 General Biology I
BIO 1620 General Biology I Lab
BIO 1710 General Biology II
BIO 1720 General Biology II Lab
BIO 2100 Health Science Seminar
ENV 2110 General Ecology
ENV 2120 General Ecology Lab
BIO 3110 Cell and Molecular Biology
BIO 4210 Genetics
BIO 4010 Senior Seminar

Choose one of the following:

BIO 3210/3220 Advanced Anatomy & Physiology I + lab
BIO 3310/3320 Advanced Anatomy & Physiology II + lab
BIO 4110/4120 Microbiology + lab

Required Mathematics/Physical Sciences:

PHY 2140 College Physics I
PHY 2150 College Physics I lab
PHY 2160 College Physics II
PHY 2170 College Physics II lab
MAT 3200 Probability and Statistics

Additional Required Course:

PSY 1100 Introduction to Psychology

Required Field Learning

Choose three credits from the following:

BIO 2850/60/70 Healthcare Observation ±1 credit each
BIO 2810/20/30 Healthcare Experience

Required Mathematics/Physical Sciences:

PHY 2140 College Physics I
PHY 2150 College Physics I lab
PHY 2160 College Physics II
PHY 2170 College Physics II lab
MAT 3200 Probability and Statistics

Required Field Learning

Choose three credits from the following:

BIO 2850/60/70 Healthcare Observation ±1 credit each
BIO 2810/20/30 Healthcare Experience

LIFE SCIENCE EDUCATION MAJOR

Bachelor of Science

The major in life science education is designed for students desiring to teach science, particularly biology, at the secondary level.

The requirement for a major in life science education is a minimum of 35 credit hours in the sciences, including a minimum of

MEDICAL IMAGING MAJOR

In partnership with John Patrick University

Bachelor of Science

The major in medical imaging is offered in collaboration with John Patrick University (JPU). This technical degree prepares graduates for certification in magnetic resonance imagery (MRI), nuclear medicine, sonography, or computed tomography (CT) subspecialties. Students complete basic science and math courses along with General Education at Grace College with the remaining specialty coursework offered remotely through JPU. Clinical training occurs at one of the nearly 200 medical facilities partnered with this program.

Grace College Core (39 hours)

Additional Grace College General Education for B.S. degree (6 hours)

MAT 1120 College Algebra

PSY 1100 Introduction to Psychology excluding Sonography

SC 1140 Physical Science Survey ±Sonography only

Required Grace College courses (22 hours):

BIO 2010/2020 Anatomy & Physiology I and Lab

BIO 2040/2050 Anatomy & Physiology II and Lab

(or BIO 1710/1720 General Biology II and Lab) excluding Sonography

BIO 2700/2710 Introduction to Microbiology excluding Sonography

BIO 3710 Pathophysiology

MAT 3200 Probability and Statistics CT only

PHY 2140/2150 College Physics I and Lab CT and Nuclear Med only

BIO 1040 Intro to Medical Terminology ±Sonography only

Required JPU Core Medical Imaging courses (33 hours): MRI, Nuclear Medicine and CT only

RS 300 Orientation to Advanced Modalities

RS 306 Patient Care in Advanced Modalities

BIOL 352 Imaging and Sectional Anatomy

RS 312 Radiation Physics

RS 390 Ethics and Law for Advanced Modalities

RS 302 Radiation Biology and Protection

MI 330 Leadership and Communication

RS 314 Pharmacology

RS 316 Professionalism and Workplace Experience

RS 403 Professional Practice

RS 435 Research Methods and Capstone

RS 420 Clinical Practice I

Concentrations (select one of the following):

Nuclear Medicine (24 hours):

NM 400 Orientation to Nuclear Medicine

NM 406 Diagnostic and Therapeutic Procedures I

NM 407 Diagnostics and Therapeutic Procedures II

NM 408 Instrumentation, QC and QA

NM 414 Radiopharmacy and Pharmacology

NM 424 Radiation Safety in Nuclear Medicine

NM 421 Clinical Practice II

emphasize hands-on, field-based learning in addition to classroom instruction. The majors have been intentionally constructed to prepare students desiring immediate employment in an environmental career following their undergraduate graduation from Grace as well as those who plan to go on to graduate school to further their formal education.

Program Learning Outcomes

1. Students will develop a sense of purpose and satisfaction stemming from Biblical stewardship principles.
2. Students will demonstrate application of ecological concepts.
3. Students will demonstrate field sampling skills.
4. Students will apply field sampling skills in a research context.
5. Students will demonstrate oral presentation skills.
6. Students will demonstrate written communication skills.

Majors and Minors in the Environmental Science Program

ENVIRONMENTAL BIOLOGY MAJOR

Bachelor of Science and Bachelor of Arts

The requirement to complete a major in environmental biology is 49 credit hours in ecology, biology, and supporting courses. A minor in chemistry is also required. The environmental biology major will prepare those students focused on a career in teaching or cutting-edge research with the academic platform necessary to succeed in graduate school.

Required Courses (36 hours) :

BIO 1610/1620 General Biology I and Lab
 ENV 2110/2120 General Ecology and Lab
 ENV 3210/3220 Aquatic Ecology and Lab
 ENV 3410 Environmental Ethics
 ENV 4010 Senior Seminar
 ENV 4210 Genetics
 ENV 4830 Field Education
 MAT 1230/1240 Calculus I and Lab
 PHY 2140/2150 College Physics I and Lab
 PHY 2160/2170 College Physics II and Lab

Electives ±choose from the following (13 hours):

BIO 1710/1720 General Biology II and Lab
 ENV 2410/2420 Plant Biology and Lab
 ENV 2510/2520 Animal Biology and Lab
 ENV 4110/4120 Microbiology and Lab
 ENV 4810 Field Education
 ENV 4820 Field Education
 ENV 4830 Field Education
 ENV 3950 Various Au Sable Institute courses
 MAT 3200 Probability and Statistics
 SCI 1160 Theories on Origins

Required Chemistry minor (19 hours):

CHM 1610/1620 General Chemistry I and Lab

CHM 1710/1720 General Chemistry II and Lab

CHM 2610/2620 Organic Chemistry I and Lab

CHM 2710/2720 Organic Chemistry II and Lab

CHM 3610 Environmental Analytical Chemistry

NOTE: MAT 3200 Probability and Statistics and POS 3010 State and Local Government are

PRE-PHYSICAL THERAPY CONCENTRATION (66 credit hours)

Exercise Science Foundation (24 hours):

- EXS 1000 Introduction to Exercise Science
- EXS 1050 Dynamics of Fitness
- EXS 2000 Kinesiology
- EXS 2250 Care and Prevention of Injuries
- EXS 3000 Strength and Conditioning
- EXS 3600 Fitness Assessment
- EXS 4180 Exercise Physiology
- EXS 4240 Biomechanics

Science Requirements (35 hours):

- BIO 1610/1620 General Biology I and Lab
- BIO 1710/1720 General Biology II and Lab
- BIO 2210 Nutrition
- BIO 3210/3220 Advanced Anatomy & Physiology I and Lab
- BIO 3310/3320 Advanced Anatomy & Physiology II and Lab
- CHM 1610/1620 General Chemistry I and Lab
- CHM 1710/1720 General Chemistry II and Lab
- PHY 2140/2150 College Physics I and Lab
- PHY 2160/2170 College Physics II and Lab

Experiential Learning Requirements (7 hours):

- EXS 2150 Practicum in Exercise Science
- EXS 4840 Research in Exercise Science
- EXS 4930 Internship in Exercise Science

Suggested Electives * - choose from the following (6 hours) :

- EXS 2130 Principles of Coaching
- PSY 2170 Abnormal Psychology
- PSY 2360 Child and Adolescent Psychology
- PSY 2280 Life Span Development
- PSY 3300 Sport Psychology
- PSY 3550 Health Psychology
- PSY 3600 Motivation and Emotion
- SMT 2050 Risk Management
- SOC 3230 Substance Use and Abuse

*Suggested electives are intended to enhance the major, but are not part of the required 66 credit hours.

No minor is required for this major.

NOTE: Course descriptions for SMT can be found in the Department of Sport Management course listings. Course descriptions for PSY and SOC can be found in the Department of Behavioral Science course listings.

EXERCISE SCIENCE MINOR

The requirement for a minor in exercise nutrition is 22 credit hours in exercise science-focused courses.

Anatomy and Physiology Requirements ±choose one of the following:
BIO 2010/2020 Anatomy & Physiology 1 and Lab
BIO 3310/3320 Adv Anatomy & Physiology 1 and Lab

Exercise Science (15 hours):
EXS 1050 Dynamics of Fitness
EXS 2000 Kinesiology
EXS 2250 Care and Prevention of Injury
EXS 3000 Strength and Conditioning
EXS 3600 Fitness Assessment

Choose one of the following :
BIO 2210 Nutrition
EXS 4180 Exercise Physiology
EXS 4240 Biomechanics

NUTRITION MINOR

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Liberal Arts Electives

Every student at Grace College pursuing a Bachelor of Science degree in a major not under the math program is required to take a math class (certain majors have specific requirements). The mathematics program offers a variety of courses to fit the interests of each student: Quantitative Reasoning, College Algebra, Introduction to Statistics, Probability and Statistics, Calculus, etc.

MAJORS AND MINORS IN THE MATHEMATICS PROGRAM

ACTUARIAL SCIENCE MAJOR

Bachelor of Science and Bachelor of Arts

The actuarial science major equips students to become an actuary or pursue another statistics-based career. A total of 46 credit hours in mathematics, business, and information systems courses are required.

Math Requirements (25 hours):

- MAT 1230/1240 Calculus I and Lab
- MAT 1250 Calculus II
- MAT 2250 Calculus III
- MAT 2280 Differential Equations
- MAT 4200 Probability Theory
- MAT 4320 Mathematical Statistics
- MAT 4020 Senior Seminar in Mathematics
- MAT 4930 Mathematics Internship

Business Requirements (21 hours):

MATHEMATICS MAJOR

Required Courses (3 1 hours) :

MAT 1230/1240 Calculus I and Lab

MAT 1250 Calculus II

MAT 2250 Calculus III

GENERAL SCIENCE MINOR

The requirement for a minor in general science is 24 credit hours of courses in biological, environmental, and/or physical science. Choose any courses from biological, environmental or physical science (912 0 612 792 re W* n BT /F4 11.04 Tf 1 0 0 1 147.38 688.18 Tm 0 g 0 A49 T1.04 Tf 1 0

BIO 1720 General Biology II Laboratory

The laboratory is designed to support BIO 1710 and must be taken concurrently with the course. This course has a fee for consumables used in its labs.

BIO 2010 Anatomy and Physiology I

This course is designed for students pursuing a career in an allied health field (nursing, health and wellness, etc.) The class includes the study of basic gross and microscopic anatomy and the function of the body on cellular, tissue, and organ system levels. The class will include

factors in food selection. Prerequisite: BIO 1610/1620 or consent of the biology program director. Three hours.

BIO 2240 Intro to Public Health

CHM 4700 Advanced Inorganic Chemistry

The goal of this course is to expose the student to advanced topics and problems in inorganic chemistry. This course begins with a review and more in-depth look into inorganic basics of bonding (VSEPR theory, Lewis structures, etc.). Symmetry and group theory are also investigated as well as utilizing this work to predict IR and Raman bands for spectroscopic analysis. Molecular orbital theory, degenerate orbitals, homonuclear and heteronuclear diatomic molecular orbital diagrams will be studied, reproduced, and mastered to more fully understand the dual properties of electrons in bonding. Finally, organometallic chemistry, the 18-electron rule, and organometallic mechanisms will be explored to predict and understand reactions with transition metal complexes. Pre-requisite: CHM 2710/2720. Three hours.

CHM 4710-4730 Internship in Chemistry

This course is designed to provide the chemistry major an opportunity to gain experience in a department or QC (quality control), however other positions may also be available. The student is expected to learn the skills needed to successfully work within this internship, grow in their responsibilities, keep all company information private, and leave the internship with a letter of recommendation to industry. For instance, the student could be a water-quality chemist for our local zoo. One to three hours

CHM 4810-4830 Research in Chemistry

A course designed to give the student an opportunity to do individual research in an area of special interest in chemistry. A written report or professional presentation of the results at an external meeting at the regional or national level is required. Prerequisite: consent of the faculty research advisor. This course is designed to train the student in relevant research investigation, problem solving, acquisition of scientific data, library research, and dissemination of research results to a broader public. The student is expected to become a member of a scientific society or academy and promote their science at local and/or regional/national venues. The student is

EXERCISE SCIENCE

EXS 1000 Introduction to Exercise Science

Introduction to Exercise Science is an entry level course that is designed to introduce students to the field of exercise science. This course will prepare students with knowledge and information on related health topics including: the history of exercise science, fitness assessment, nutrition, biology, exercise physiology, biomechanics, physical fitness, career opportunities, and beginning diagnostic tools. Three hours.

EXS 1050 Dynamics of Fitness

This course will investigate major topics in the study of lifestyle management. Topics included are: wellness, physical fitness, nutrition, disease, prevention, stress management, and consumerism. Three hours.

EXS 2000 Kinesiology

This course is designed to guide students in the exploration of human anatomy, functional anatomy, fundamental movements and select movements. This will include an in-depth examination of the musculoskeletal framework through structure, function, and application in sport and exercise. Three hours.

EXS 2130 Principles of Coaching

This course is focused on providing a practical guide to coaching. The fundamentals needed to build a successful sport, personal training or team/group experience begin with basic principles such as practice planning, team building and program development. This class provides instruction to assist the student in possessing the skills to lead and coach individuals in their specific field. Three hours. Offered every other year.

EXS 2150 Practicum in Exercise Science

A practical experience rotation in real-world settings. Students observe exercise science professionals in their prospective fields, and work on interpersonal skills at rotation settings. Pre-requisite: EXS 1000. Two hours.

EXS 2250 Care and Prevention

Designed to provide information needed to manage the care of athletic injuries² from prevention, identification and assessment of injuries to interaction with players, parents and physicians. Geared toward those beginning careers in fitness or coaching, equipping them for management and implementation of injury and emergency situations. Prerequisites: EXS 2000 or BIO 1710/1720 or BIO 3210/3220. Three hours. This course has a fee for consumables used in its labs.

EXS 2300 Nutrition for Life Cycles

Nutrient requirements and anthropometric aspects of nutrition for the following life stages: prenatal, pregnancy, lactation, infancy, childhood, adolescence, adult, and late adulthood. Exploration of the influences on the diet of each life cycle, including physiological, psychological, sociological, and cultural factors. Pre-requisite: CHM 1010/1020. Three hours.

EXS 2500 Group Fitness Instruction

development, and strategies for modifications or progression of clients. This class positions students for certification in group fitness instruction. Three hours. Offered every other year.

EXS 3000 Strength and Conditioning

Principles of strength and conditioning draws students into a creative design and implementation of exercise for various areas of the body. A large majority of students pursuing careers dealing with exercise will encounter prescription weight training and physical conditioning. This course specifically addresses form, function, and programming for the upcoming fitness professional. Prerequisite: EXS 2000. Three hours.

EXS 3200 Nutrition for Sports Performance

Supporting and advancing athletic performance through nutritional strategies and therapies. Exploring specific nutritional needs among a variety of sports, as well as proper recovery methods and diet planning for optimizing body composition, speed, explosive and endurance-based performances. Examination of the risks and benefits of ergogenic supplements found in fitness and details concerning the effects of eating disorders. Students will frequently practice planning and strategizing diet and recovery methods for various sports and athlete profiles. Prerequisite: BIO 2210. Three hours.

EXS 3280 Nutrition for Health and Disease

MAT 4200 Probability Theory

In this course we study the axioms and theorems of probability theory. We study probability distributions of discrete and continuous random variables, and many of their applications. Throughout this course we will use a significant amount of calculus to develop the theory of probability. Material covered in this course is included on Exam P/1 of the SOA/CAS. Prerequisites: MAT 2250 and MAT 2100, or permission of the mathematics program director. Three hours.

MAT 4320 Mathematical Statistics

This course is the study of multivariable statistics on real data sets. Correlation, hypothesis testing and ANOVA are highlights of this class, which require a significant use of calculus. Prerequisites: MAT 2250 and MAT 3200.

MAT 4280 Real Analysis

Introduction to the fundamental concepts of real analysis. A study of the real number system, limits, sequences, series, convergence, functions, continuity, differentiability, and Riemann integration can all be touched on. Prerequisite: MAT 2100 or permission of the mathematics program director. Three hours.

MAT 4830 Research in Mathematics

Research in mathematics is designed for students who have excelled in several post-calculus classes and have a desire to investigate the fine details of a topic in an attempt to advance the theory with new theorems, new proofs, or new applications. A student wishing to undertake such a research project must do so under the strict supervision of a faculty member and with the permission of the mathematics program director. The supervising faculty member must be willing to invest significant time into helping the student find appropriate resources, ask appropriate research questions, and seek out coherent answers to the questions asked. This course is intended to give students precursory experience into what a graduate thesis experience would be like. Research in mathematics is a non-repeatable class. Prerequisites: MAT 2200, availability of professor, and permission of mathematics program director. Three hours.

MAT 4930 Mathematics Internship

The internship includes activity in a work environment, allowing the student to experience a hands-on opportunity to apply the skills and principles learned in class to a real-world, professional setting. Three hours of credit is given and is equivalent to approximately 120 hours in the work-place (or 40 work hours per credit hour). Students are responsible for providing their own transportation during the duration of the internship opportunity. Prerequisites: MAT 1230/1240, MAT 1250, and MAT 2250 or consent of the instructor. Three hours.

PHYSICS**PHY 2140 College Physics I**

The first half of a basic course covering the topics of kinematics, dynamics, energy, waves and sound. Prerequisite - One of the following: MAT 1120, MAT 1230/40, ACT Math score of at least 26, SAT Math score of at least 610, passing of department placement exam, or permission of the instructor. Students must enroll concurrently in PHY 2150. Four hours.

PHY 2150 College Physics I Lab

Designed to support PHY 2140 and must be taken concurrently with the course. This course has a fee for consumables used in its labs.

SCI 2030 Faith, Science, and Reason

Faith, Science, and Reason is designed to assist the student in demonstrating the scope and magnitude of science and mathematics: why we study these subjects; knowing the limitations of