College of Health Sciences

Led by Dean Shortie McKinney, Ph.D., the College of Health Sciences is a unique and exciting combination of health professionals, community health educators and public health advocates - all committed to finding ways to advance the health of our region, nation and the world. Learn more about the College of Health Sciences on our website.

Mission of the School of Health & Environment

The mission of the School of Health and Environment is to promote human health and development to allow healthy individuals and families to live in safe and productive communities and environmentally sustainable economies. This mission requires of us and our students a vision of just, secure and sustainable social, economic and environmental systems, and is expected to undergo continual evaluation and revision to achieve our vision.

We recognize that achieving this mission requires:

- improving our understanding of health, disease and disability and their social context,
- increasing citizens' understanding of health problems and their environmental, social, and economic causes,
- expanding community and workplace opportunities for promoting good health,
- developing environmentally sound systems of production and consumption,
- exploring the fullest understanding of our region defined by common political, social, ethnic, economic and cultural boundaries
- addressing the determinants of social and economic disparities in our region,
- maintaining a health care system that is effective and compassionate, and promoting innovative government policies to support human health and development.

College of Health Sciences Organization and Governance

The College of Health Sciences is organized into five departments and is administered by a dean who is assisted by an executive committee. Each department is responsible for developing programs of study and course offerings. Although the faculty of the College has overall responsibility for all academic policies of the School, the academic standards committee is responsible for enforcing the academic standards of the School and also serves as a review body for suspended students seeking readmission with probationary status. In addition, each department has its own professional review committee that evaluates appeals from students who have not met the criteria for retention in their specific programs. Such appeals to professional review committees may be submitted only once, and all decisions of the faculty are final.

Leadership Committee

Shortie McKinney, Dean
Susan Houde, Associate Dean
Pauline Ladebauche, Assistant Dean
Eugene Rogers, Chairperson, Clinical Laboratory and Nutritional Sciences
Nicole Champagne, Chairperson, Community Health & Sustainability
Karen Devereaux Melillo, Interim Dean, Nursing
Lisa Abdallah, Chairperson, Nursing
Deirdra Murphy, Chairperson, Physical Therapy
Bryan Buchholz, Chairperson, Work Environment

College of Health Sciences Academic Advising

Students in the College of Health Sciences are assigned an academic advisor from their major upon admission. Students may verify their advisor's name on their student ISIS account. Advisors are available during scheduled office hours each week to meet with students to provide advice and counsel about course selection, academic progress, student concerns and availability of University resources for students. Students are responsible for making an appointment with their advisors during registration periods in Fall and Spring semesters. Students who fail to avail themselves of this opportunity and who register for incorrect courses, or who withdraw from courses in the schedule that they have developed with their advisor, may find it necessary to extend their period of study and may be ineligible to continue in their major. All seniors are required to consult with their advisors prior to the University established deadline for filing DIG Forms (Declaration of Intent to Graduate) with the Office of the Dean. DIG Forms summarize senior-level status with respect to requirements of the curriculum, grade point averages and documents that all stated requirements for graduation are satisfied.
Declaration of Program and Change of Program in College of Health Sciences

Students entering the College of Health Sciences are required to declare a major at the time of admission. Transfers into any major in the College of Health Sciences are granted on a space available basis only to students who have met departmental requirements. Specific cumulative G.P.A., science G.P.A. and other requirements are posted on individual department websites.

Baccalaureate Degree Programs in the College of Health Sciences

The College of Health Sciences offers undergraduate programs leading to the degree of Bachelor of Science with majors in Clinical Laboratory Sciences (with options in Clinical Science and Medical Laboratory Science, formerly Medical Technology option), Nutritional Sciences, Community Health Education (with an Option in Environmental Health), Environmental Health, Exercise Physiology and Nursing. All departments in the College also offer graduate degrees (for further information see the Graduate School Catalog - http://www.uml.edu/catalog/graduate). The Department of Work Environment offers graduate degrees exclusively, however, graduate courses that introduce the work environment disciplines to School undergraduates are also described in the department descriptions below.

The course requirements for undergraduate programs of the college have been determined by specific professional objectives and are subject to the recommendations of the various professional accrediting associations. Each course of study provides a basic general education in the sciences, the psycho-social areas, and the humanities; a comprehensive introduction to the health professions; upper division professional courses; and clinical or teaching experiences in one or more community health agencies or schools. Candidates for the Bachelor of Science degree in the College of Health Sciences must comply with the University general education requirements and with the rules and regulations of the College. The University general education requirements are described under Academic Policies (http://www.uml.edu/catalog/undergraduate/policies/academic-policies.aspx).

Candidates for degrees in the College of Health Sciences may be permitted to elect a second academic major or a minor in another college provided that all curriculum requirements of the College can still be satisfied. Election of a second major or minor may require an extension of the normal four-year period of undergraduate study.

Programs:

- Clinical Laboratory & Nutritional Sciences
- Community Health & Sustainability
- Nursing
- Physical Therapy
- Department of Work and Environment (graduate only)

Appeals Procedure for Reinstatement in College of Health Sciences

Students who have been dismissed from their major for academic or non-academic reasons will receive a notification letter from their department. Students who are eligible to appeal for reinstatement, must submit a written appeal to the appropriate Department Professional Review Committee for re-evaluation of their status. This appeal must be received no later than the date specified in the letter and should explain those factors which led to unsatisfactory academic performance and identify the student’s plan to address these factors in order to attain academic success.

The Department Professional Review Committee will review the student’s appeal and vote to grant the appeal with probation, grant the appeal without probation or deny the appeal. If a student is placed on probation, specific terms of probation will be explained in a letter to the student. If the appeal is denied, the student must transfer to another major.

Students who are dismissed a second time may not appeal any further to their department. Students may submit a written appeal to the Dean of the College of Health Sciences. After consideration of the available information, the Dean will either return the appeal to the Department Professional Review Committee for further reconsideration or uphold the dismissal.

Requirements for Succession in College of Health Sciences Programs

Irrespective of the classification policies of the University, students shall not be admitted to professional courses of the College of Health Sciences unless they have satisfactorily completed all courses which are specified in their programs of study for the first two semesters and have achieved a cumulative grade-point average of 2.50 or better (Nursing 2.70 or better) for all such courses. Students enrolled in exercise physiology, medical technology, and nursing also are required to achieve at this time a cumulative grade-point average of 2.50 or better (Nursing 2.70 or better) in their required science courses.

To qualify for continued matriculation in programs of the College of Health Sciences, all students must maintain on-going cumulative averages of 2.50 (2.70 for Nursing) or better by achieving the following averages the end of the freshman year and at the end of each semester thereafter:

1. a semester average of 2.50 (2.70 for Nursing) or better,
2. not less than a grade ‘C’ in any professional major course and
3. a semester average of 2.50 (2.70 for Nursing) or better for professional courses attempted in the major.

Students enrolled in exercise physiology, medical technology, and nursing must maintain a cumulative grade point average of 2.50 (2.70 for Nursing) or better.
for Nursing) or better in their required science courses. Students who fail to satisfy these academic requirements will be dismissed from their respective programs. Such students may seek reinstatement to programs by filing a petition with the professional review committee of their respective departments. Students who are granted a one-time probationary period must maintain all College criteria for remainder of time in their major. Failure to do so will result in dismissal from the program. Students whose petitions for reinstatement are denied may seek transfer to another major within the University if they qualify under University policies as students with satisfactory academic standing. Students who do not qualify for such standing may be dismissed from the University at the time they are dismissed from the College of Health Sciences and are ineligible for readmission as probationary students in the College.

All students in the College of Health Sciences must demonstrate a level of professionalism and a state of emotional and physical health which will enable them to provide safe competent practice in their chosen professional field. In special cases, at the request of the professional review committee of the student’s major department, an individual may be required to present statements of physical and/or mental health from appropriate physicians or psychiatrists who are fully licensed by the Commonwealth of Massachusetts. On the basis of a review of such statements, the professional review committee may recommend to the chairperson of the student’s major department that the individual be denied admission to or continuance in the major program. Students must demonstrate professional behavior in all practicum/pre-practicum courses. Students must successfully meet the course objectives of the practicum/pre-practicum courses. Failure to meet course objectives or standards of practice in clinical or practicum/pre-practicum courses, will result in course failure regardless of academic grades in non-practicum courses.

Requirements for Continued Matriculation in the College of Health Sciences

STUDENT RESPONSIBILITY

It is the responsibility of each student to be aware of and comply with current policies and procedures. Students who need reasonable academic accommodations based on documented disabilities are encouraged to consult with the Office of Disability Services.

ACADEMIC REQUIREMENTS

To qualify for continued matriculation in programs of the College of Health Sciences students must meet the academic requirements of the University and of the college and program in which the student is enrolled. Academic requirements for cumulative GPA, semester GPA, science GPA and GPA for professional courses are listed on each department’s website. Students are advised to review the Appeals Procedure for Reinstatement in the College of Health Sciences.

PROFESSIONAL SKILLS /TECHNICAL STANDARDS

All students in the College of Health Sciences must demonstrate a level of professionalism and a state of emotional and physical health which will enable them to provide safe, competent practice in their chosen professional field. All students are expected to demonstrate essential skills necessary to work accurately and safely with peers, faculty, staff, other members of the health care team and patients/clients in a variety of settings. Students must demonstrate professional behavior in all theory, practicum and pre-practicum courses. Specific Professional Competencies, Technical Standards &/or Essential Functions are listed on each department’s website. Failure to meet these Competencies and Technical Standards including professional skills in observation and examination, communication, motor function, critical thinking and behavioral/social function will result in course failure and may jeopardize continued matriculation in the student’s major.

30.102 Introduction to Public Health

Course ID: 37903

Course Details: Public health topics, both historical and contemporary are of importance to all citizens and to societal decisions. This survey course provides a foundation for understanding public health through exposure to current health care and policy issues viewed through the perspective of multiple disciplines. Methodology for understanding population health and developing critical thinking and decision-making skills in the analysis of public health issues using a population-based perspective will be developed. The course will provide an ecological understanding of the causation and prevention of disease with an emphasis on health issues that affect society as a whole.

Max Credits: 3
Min Credits: 3

30.104 Topics in Health

Course ID: 38079

Course Details: This introductory course is designed to provide students with the opportunity to explore a variety of topics and issues in health through reading and discussing recently published articles. Using classroom discussions as the major format for this course, students will be encouraged to think critically about current topics and issues in health to strengthen their analytical skills. This course will also assist students in developing oral presentation and communication skills that are necessary in the health field.

Max Credits: 3
30.120 Life Skills

Course ID: 4440

Course Details: This course is designed to assist new students adjust to, and succeed in college and beyond. Course subject matter has been created in conjunction with the National Collegiate Athletic Association (NCAA). This course has been specifically designed to meet the needs of the student-athletes who are current members of our campus community. Successful completion of this course will give the participants the skills necessary to be successful students, athletes and citizens academically, socially, personally and professionally.

Max Credits: 3
Min Credits: 3

30.204 Introduction to Exercise Physiology

Course ID: 4446

Course Details: This course serves as an introductory course to the field of Exercise Physiology. It is designed as a program foundation to the profession and to professional behavior. Students will be exposed to what happens in both the fitness centers and in the cardiac or pulmonary rehabilitative facilities. The course will serve as a precursor to the remaining upper division major courses.

Max Credits: 3
Min Credits: 3

30.210 Clinical Calculations

Course ID: 35852

Course Details: This elective course is designed for students beginning the nursing program. It reviews the mathematics necessary to compute drug calculations using dimensional analysis. This course covers the metric system of weights and measures. The focus of the course is on the computation of drug dosages for oral and parenteral medications with emphasis on the application of skills necessary to calculate intravenous infusions and medications.

Max Credits: 1
Min Credits: 1

30.214 Careers in Health

Course ID: 38080

Course Details: This introductory survey course is designed to give those students interested in health careers the opportunity to explore a variety of career path options in the health field. The goal of this course is to help students recognize their interests, knowledge, skills, and aspirations so that they can begin to make educated career decisions. The knowledge students will gain throughout this course will help them discern their own career path in the health care industry.

Max Credits: 1
Min Credits: 1

30.305 Exercise Physiology Lecture

Course ID: 4455

Course Details: This course is designed to enable students to understand the acute and chronic physiologic effects of exercise on the human body. Topics will include bioenergetics, cardiopulmonary and cardiovascular physiology, neuromuscular physiology, special populations, and exercise prescription for apparently healthy athletic and clinical populations. Special topics in exercise physiology and environmental physiology will also be covered.

Max Credits: 4
Min Credits: 4

30.306 Introduction to Gerontology

Course ID: 4456
Course Details: This course examines human aging from a multidisciplinary and developmental perspective. The course will focus on the adult years of the life span. The social-psychological factors involved in adjustments to the aging process, to retirement, to family, to leisure, to aloneness, to death and bereavement will be discussed together with such special concerns of the elderly as widowhood, finances, religion, sexuality and health problems. Rehabilitative strategies such as remotivation and reality orientation are included.

Max Credits: 3
Min Credits: 3

30.308 Global Health

Course ID: 36693

Course Details: The focus of this course is on examining health issues from a global perspective including issues related to maternal and child health, aging, infectious diseases, sanitation, and health inequality. Nutritional and environmental health issues in diverse societies are analyzed. Social determinants of health and access to health care in developing and developed countries are emphasized.

Max Credits: 3
Min Credits: 3

30.309 Universal Design in the Promotion of Health

Course ID: 36694

Course Details: This is a three-credit interdisciplinary undergraduate blended course (face-to-face and online). The course is designed to examine the principles of universal design and investigate challenges of equity, access and inclusion in healthy communities. Undergraduate students from a variety of disciplines will examine universal design and Assistive Technology (AT) that enhances the participation of individuals with a physical, emotional, sensory or intellectual and cognitive disability in education, community development, health care, recreation and public policy. The course reviews design concepts and the use of Assistive Technology as it relates to education, communication, vocation, recreation, and mobility for individuals with disabilities. Laws focusing on assistive technology in the home, school, community, and the workplace will be examined. The course explores both 'low tech' and 'high tech' types of assistive technologies that are available to support people with disability, based on the ICF model of disability. Interaction with users of assistive technology is accomplished through an experiential learning project. Students will engage in a team project that completes a thorough examination of a particular access or functional challenge and the use of universal design and AT to increase participation and minimize the effects of the person's impairments.

Max Credits: 3
Min Credits: 3

30.315 Kinesiology

Course ID: 1250

Course Details: This course combines the study of mechanics, kinematics, kinetics, anatomy and neuromuscular physiology to teach the examination and evaluation of human movement. The major focus of the course is in qualitative evaluation of movement. Topics also include quantitative evaluation, body mechanics, posture and gait evaluation with a focus on identification of abnormal movement patterns. All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Max Credits: 3
Min Credits: 3

30.319 Pathophysiology

Course ID: 34614

Course Details: This course provides an overview of the dynamic aspects of disease processes as they present in major body systems.

Max Credits: 3
Min Credits: 3

30.320 Legal Issues in Nursing

Course ID: 34664

Course Details: This course provides an overview of legal issues nurses encounter in clinical practice. Case studies will be used to identify common risks to safety and quality of care. To examine the legal process when lawsuits are filed and to identify preventive strategies which improve quality of care and therefore, decrease legal risks for nurses.
30.322 Independent Study Health Promotion

Course ID: 4462

Course Details: This course focuses on a health promotion project. Must have faculty approval for the course. Can be for 1, 2, or 3 credits.

Max Credits: 3
Min Credits: 3

30.402 Global Health Experience

Course ID: 36715

Course Details: The Global Health Experience provides an experiential learning experience in health within a country outside of the United States. Students will study the health issues of a given country while examining the socio-cultural, economic and environmental determinants of health within that society. The strengths and weaknesses of the existing health care system will be analyzed. Students will explore the culture, environment, and health care system under the direction of School of Health and Environment faculty.

Max Credits: 3
Min Credits: 3

31.100 Environmental Health Seminar

Course ID: 35835

Course Details: This required, non-credited seminar for Freshman and Sophomore Environmental health Students explores current affairs and controversies in environmental health theory and practice. Readings and outside speakers will supplement short lectures, faculty and student-led discussions.

Max Credits: 0
Min Credits: 0

31.201 Community Health and Environment

Course ID: 4476

Course Details: This course emphasizes the concepts, philosophy, and principles of public health and their relationship to physical, mental, and social well-being of the community. The focus is on the prevention of disease, the promotion and maintenance of health, and the provision of environmental and personal health services through organized community effort.

Max Credits: 3
Min Credits: 3

31.203 Technology in Public Health

Course ID: 31960

Course Details: A lecture and hands-on course designed to help students better understand the role of computers and information technology in public health. Students will be guided through the use of various software applications that enhance public health efforts, including: word processing, database design and management, spreadsheets, presentations, geographical information systems (mapping health data), and internet based applications for social networking to address health related issues, as well as other uses. Discussions of what the future may hold for health information technology will also be included. Hands-on assignments will help students become more proficient with PC based software.

Max Credits: 3
Min Credits: 3

31.204 Intro to Health Promotion

Course ID: 4478
Course Details: This course focuses on the role health education plays in the development of healthful patterns of living. A philosophy of health education emphasizing holistic health will be generated. The organization and administration of school, community, health care facility, and workplace health education programs are introduced.

Max Credits: 3
Min Credits: 3

31.206 Research Methods in Public Health

Course ID: 32566

Course Details: Introduction to research methodologies used in the study of community and environmental health problems. Students will discuss actual research studies conducted by UMASS Lowell faculty in the College of Health Sciences.

Max Credits: 3
Min Credits: 3

31.301 Program Planning in Health Promotion

Course ID: 4479

Course Details: This course is primarily designed to introduce undergraduate students studying Health Education to the concepts and principles underlying the educational strategies geared toward promoting health and preventing disease in a variety of settings. The course emphasizes practical utility of the concepts as they relate to the students' future health education/promotion efforts. The importance of a needs assessment and program evaluation will be especially focused upon in the course, as well as strategies integrating these valuable tools into curriculum design.

Max Credits: 3
Min Credits: 3

31.303 Social Determinants of Health

Course ID: 4481

Course Details: This course introduces students to the concept of social determinants of health, and strongly emphasizes the influence of social power relations on public health. An examination of a set of major health issues, both international and national levels provides the framework for students to learn and understand these concepts. A set of learning modules begins with identifying major contemporary health problems, definitions of health and health promotion as established through the World Health Organization, and an exploration of social power relations and how they can shape public health. The course then moves to examine a set of specific health issues to see how they have been shaped by their social determinants. Juniors only.

Max Credits: 3
Min Credits: 3

31.304 Politics of Health

Course ID: 4482

Course Details: The course addresses a range of contemporary health problems (primarily in the U.S.) that are described and analyzed in their social context. Areas for consideration will include: political, economic, scientific/technological, environmental, and cultural factors. Students will be introduced to health education theories and methods that support the development of strategies for social change. Juniors only.

Max Credits: 3
Min Credits: 3

31.305 Introduction to Epidemiology

Course ID: 4483

Course Details: This course is designed to introduce basic epidemiological methods used in the study of current major health problems. Content includes explanation of the scope and focus of epidemiology, simple measures of disease frequency and association used in the study of the distribution and determinants of disease, types of epidemiological study designs, and practical applications. Emphasis on interpretation of epidemiological information and application of findings Prerequisite: Community Health and an elementary statistics course. Required for seniors in Community Health Education; open by permission to other upper division students in Health Professions.
31.306 Socio-Ecological Health Assessment

Course ID: 4484

Course Details: Systems thinking, ecological and spatial principles and techniques are used to assess multiple contemporary health issues such as health literacy, emergence, reemergence of infectious diseases, climate change impacts and dimensions, aging population, and war and violence among other topics. The practical component of the course includes mapping and spatial analysis projects. Juniors only.

Max Credits: 3
Min Credits: 3

31.313 Principles of Environmental Health

Course ID: 4487

Course Details: This course will survey the rapidly growing field of environmental health through an introduction to the links between environmental stressors and impacts on public health. The course will explore human and industrial activities that impact on environmental health such as population, food production, air and water pollution, waste, the built environment, toxic substances, pests, and global climate change. The course will also examine the types of diseases and illnesses that result from environmental impacts. Students will be encouraged to examine in greater detail a specific topic in environmental health of personal interest.

Max Credits: 3
Min Credits: 3

31.316 Environmental Health in Practice

Course ID: 32049

Course Details: Through a combination of class lectures, field trips, and a service learning project, this course is designed to introduce students to the daily responsibilities of an environmental health professional. The class will provide in-depth knowledge and hands-on understanding of topics such as food safety, indoor air quality, water quality, waste water disinfection, and chemicals management. Through lectures and guest speakers students will understand the challenges facing environmental health professionals and the resources available to them. Students will undertake a final group project for a health board or other organization.

Max Credits: 3
Min Credits: 3

31.321 Health Care Systems

Course ID: 4488

Course Details: This course describes and analyzes the nature and functions of health care services and health professionals. The course examines the impact of social, political, economic, ethical, professional, legal, and technological forces on them and the system they comprise. Juniors and Seniors only.

Max Credits: 3
Min Credits: 3

31.370 Food Safety and Agriculture

Course ID: 36701

Course Details: This course focuses on food safety and agriculture using a production-consumption life cycle model. Multiple ecological, socio-economic and regulatory aspects of food production, preparation, and consumption systems are explored. The course has an integrated theoretical and experiential learning component.

Max Credits: 3
Min Credits: 3

31.371 Chemicals and Health
Course ID: 36702

Course Details: Provides a broad overview of how the design, manufacture, use and disposal of chemicals and chemical products affect health and ecosystems. Provides an in-depth overview of how chemicals are monitored in the environment (including biomonitoring), how their risks are characterized, and the prevention of chemical risks through safer chemical design.

Max Credits: 3
Min Credits: 3

31.403 Mind, Body and Health

Course ID: 4492

Course Details: The interconnectedness of the mind, body, and spirit is integral to achieving "wellness". It is also important to acknowledge the impact each of these three aspects of wellness has upon each of the others. The growing body of research indicating the significant effects of things such as stress, anger, optimism, and healthy relationships on health status will be analyzed and evaluated. Practical strategies related to health advisement will be shared and experimented with during the semester. In this senior level course, we will explore these and many other areas of mind, body, and spirit awareness that are critical to consider when conducting health education programs.

Max Credits: 3
Min Credits: 3

31.405 Communication Techniques in Health Promotion

Course ID: 4494

Course Details: This course focuses upon the communication techniques and mass media approaches necessary to promote and implement effective health promotion programs and activities. Awareness and sensitivity toward cultural, ethnic, and religious diversity will be particularly emphasized when discussing various communication techniques in relation to particular health issues.

Max Credits: 3
Min Credits: 3

31.409 Service Learning in Community Health

Course ID: 4496

Course Details: This course is designed to serve as a service learning experience in the fall semester of students’ senior year in Health Education. Students will be expected to participate in a pre-determined community health project happening in the City of Lowell for a minimum of 40 hours. During the course of this experience, students will provide the community health organization with their time, knowledge, and effort, and will, in return, gain tremendous experience in the organization, development, implementation, and/or evaluation of Community Health Education and Promotion Projects. Collaboration with various professionals involved in the programs and projects will certainly add to students’ understanding of what a Health Educator does! An integral piece of this service learning experience will be the bi-monthly seminar geared toward assuring the connection between the community experience and the theoretical and academic framework from which it is derived. Through the use of readings, discussions, student presentations, and guest speakers, students will gain wonderful experience in terms of what it means to “build the capacity of a community”.

Max Credits: 3
Min Credits: 3

31.410 Community Health Practicum

Course ID: 4497

Course Details: Full-time health education field experience (28 hours per week). Students continue at the prepracticum site, participating in the development, implementation and evaluation of health education programs and take an active part in the total community health education process. Seniors only.

Max Credits: 10
Min Credits: 10

31.414 Program Management in Health

Course ID: 1253
Course Details: The concepts of program planning, development, budgeting and evaluation, which are essential functions for individuals working in health care agencies, are presented. Starting with the mission of the organization, the steps of conceptualizing, designing, implementing, budgeting and evaluating health programs are covered. Students will be expected to develop a grant proposal for an agency. This course is a capstone experience and resources from all other relevant coursework will be called upon. Seniors only.

Max Credits: 3  
Min Credits: 3

31.416 Environmental Health Practicum

Course ID: 32048

Course Details: This course is designed to provide students real world practical experience in the field of environmental health, as final preparation for their BS Degree. This 32 hour/week internship opportunity situates students in an environmental health setting most conducive to his or her needs and interests. Placements can vary from health boards and health departments to non-profit agencies, government agencies, university research institutes, and industry. Students work directly with an academically and professionally qualified preceptor to assure their progress in the field. The faculty supervisor is responsible for periodic meetings and correspondence to also assure appropriate development.

Max Credits: 10  
Min Credits: 10

31.417 Climate Change: Science, Communication, and Solutions

Course ID: 36711

Course Details: Climate change offers one of the greatest challenges yet faced by society and scientists. The scientific consensus is clear that climate change is occurring, its pace is accelerating, its impacts on human society will be largely negative, and it is largely caused by anthropogenic greenhouse gas emissions. Yet, despite strong scientific evidence for the enormous challenges that society may face, scientists' attempts to disseminate that evidence beyond their peers have not yet been successful. Indeed in today's media world of blogs, YouTube video clips, and sound-bites, confusion over the scientific reality of climate change frequently dominates the discourse in classrooms and communities. This course will provide students with the tools and knowledge that they need to develop their own well-informed view of climate change. Because climate change is both impacted by humans and will increasingly impact society, this course takes a cross-disciplinary approach, integrating science, policy solutions, and media literacy as they relate to climate change.

Max Credits: 4  
Min Credits: 4

31.493 Directed Study

Course ID: 4499

Course Details:

Max Credits: 3  
Min Credits: 1

33.210 Nursing Fundamentals

Course ID: 34582

Course Details: This course enables students to begin their basic knowledge of nursing. The course provides an organizing framework, based on Gordon's functional health patterns, that is strictly nursing. Therapeutic nursing interventions are incorporated into the more detailed discussion of each of the functional health patterns. A separate laboratory component is included for demonstration and practice of nursing interventions. At the conclusion of this course students will demonstrate competency in performing basic nursing intervention for individuals in a clinical setting.

Max Credits: 2  
Min Credits: 2

33.210L Nursing Fundamentals Lab

Course ID: 34583
Course Details:
Max Credits: 1
Min Credits: 1

33.301 Research in Nursing and Health Care
Course ID: 4545
Course Details: This course provides an overview of the research process. Health care research interests and the methodology of various disciplines are examined. Through a review of research studies, students examine the basic steps in the process of research. Ethical problems in the world of research are explored and students learn how research influences health care practice and policy.
Max Credits: 3
Min Credits: 3

33.306 Health Assessment
Course ID: 4550
Course Details: This combined didactic and laboratory course builds on the students' professional nursing education and experiences through the inclusion of health assessment information as applied to the professional nursing role in the community setting. Emphasis is on systematic data collection including thorough history taking, physical examination, screening and risk-factor recognition.
Max Credits: 3
Min Credits: 3

33.307 Concepts for Baccalaureate Nursing
Course ID: 4551
Course Details: This course is designated as a transition course for registered nurse students pursuing a baccalaureate degree with a major in nursing. This course aims to refine critical thinking skills and analyze nursing's unique contribution to health care. Consideration is given to the interrelationships of theory, research, and practice. Special emphasis is placed on the concepts of health promotion and risk reduction as they relate to individuals and families who are at risk for or experiencing health problems. This course includes a practicum component that focuses on the development of interventions to promote the health of individuals and families at risk.
Max Credits: 3
Min Credits: 3

33.308 Health Promotion in Nursing
Course ID: 4552
Course Details: This course is designed as a transition course for registered nurse students pursuing a baccalaureate degree with a major in nursing. It introduces the theory and research related to the concepts of health promotion and risk reduction. These concepts are presented as essential components of professional nursing practice. This course includes a clinical practicum which focuses on the development of interventions to promote the health of individuals and families. This course aims to refine critical thinking skills and analyze nursing's unique contribution to health care. Consideration is given to the interrelationships of theory, research and practice.
Max Credits: 2
Min Credits: 2

33.309 Health Promotion in Nursing Practice Practicum
Course ID: 33015
Course Details: This course is a clinical practicum which focuses on the development of interventions to promote the health of individuals and families. This course aims to refine critical thinking skills and analyze nursing's unique contribution to health care. Consideration is given to the interrelationships of theory, research and practice.
Max Credits: 3
Min Credits: 3

33.311 Health Promotion and Risk Reduction of Families Practicum I
Course ID: 4554

Course Details: This community-based clinical course is focused on health promotion of young families including childbearing women, infants, children, and adolescents. A portion of the clinical experience consists of establishing a relationship by the student with a family. First four semesters of nursing curriculum.

Max Credits: 4
Min Credits: 4

33.312 Concepts of Professional Nursing

Course ID: 4555

Course Details: Nursing as a health profession is introduced in this foundation course. The concepts of health promotion, communication, critical thinking, culture, nursing theory and research, and therapeutic nursing interventions are presented. Within the context of the American Nurses’ Association Standards of Clinical Nursing Practice, standards of professional performance are introduced and standards of care are emphasized. First four semesters of nursing curriculum.

Max Credits: 2
Min Credits: 2

33.313 Nursing Assessment and Skills

Course ID: 4556

Course Details: This course introduces students to the foundations of communication, nursing assessment, and psychomotor skills guided by standards of nursing practice. Emphasis is placed on the integration and application of these skills through the use of critical thinking.

Max Credits: 2
Min Credits: 2

33.313L Nursing Assessment and Skills Lab

Course ID: 33014

Course Details: This laboratory course introduces students to the foundations of communication, nursing assessment, and psychomotor skills guided by standards of nursing practice. Emphasis is placed on the integration and application of these skills through the use of critical thinking.

Max Credits: 1
Min Credits: 1

33.315 Health Promotion Family Practicum II

Course ID: 4558

Course Details: In this clinical course, students provide nursing care to adult clients and their families. The focus is the development of specifically tailored therapeutic interventions to promote the health of these clients and assist with potential or actual health problems.

Max Credits: 4
Min Credits: 4

33.318 Pharmacology

Course ID: 30340

Course Details: This course focuses on the study of pharmacology. Pharmacology is the study of drugs prescribed to prevent, cure or care for disease processes. The nursing focus highlights major health problems across the lifespan to include pharmacological management.

Max Credits: 3
Min Credits: 3
33.319 Pathophysiology
Course ID: 30878
Course Details:
Max Credits: 3
Min Credits: 3

33.320 Community-Focused Health and Policy
Course ID: 37806
Course Details: This course provides a foundation to community health nursing with the community, family and individual as Client. This course presents an overview of the US health care delivery system with an emphasis on the role of government in healthcare, Medicaid, and current efforts at healthcare reform.
Max Credits: 3
Min Credits: 3

33.321 Independent Study
Course ID: 30341
Course Details: Independent Study on a topic chosen by the student and agreed on by the faculty member.
Max Credits: 1
Min Credits: 1

33.322 Independent Study
Course ID: 30342
Course Details:
Max Credits: 2
Min Credits: 2

33.323 Independent Studies
Course ID: 30865
Course Details: Independent Studies
Max Credits: 3
Min Credits: 3

33.324 Community-Focused Project Implementation
Course ID: 37882
Course Details: This course focuses on improving the health of one aspect of the community. Students analyze health problems in identified communities. Interventions for community as client are developed and implemented and the effectiveness of applied interventions in evaluated.
Max Credits: 2
Min Credits: 2

33.325 Community-Focused Project Dissemination
Course ID: 37883
Course Details: This one credit course focuses on the dissemination of the results of a community based program. Students develop presentations which describe methods used to identify, intervene and evaluate the health problems of a community. Students are
required to present their findings at a formal dissemination venue identified by faculty.

Max Credits: 1
Min Credits: 1

33.412 Community Health and Health Policy

Course ID: 4569

Course Details: This course analyzes the development of policy and its impact on the health of populations. Students apply epidemiology and community health science to population-based nursing practice. Students identify a community health problem that can be addressed through health promotion activities.

Max Credits: 4
Min Credits: 4

33.413 Role Transition

Course ID: 4570

Course Details: This capstone course focuses on the transition to the professional nursing role. Content includes professional issues, trends, and leadership and management principles which impact on nursing practice. Students analyze nursing practice in relation to the standards of professional performance.

Max Credits: 4
Min Credits: 4

33.420 Leadership in Nursing

Course ID: 37884

Course Details: This course focuses on leadership roles, responsibilities, and opportunities for the professional nurse. Course content includes professional issues, trends, and leadership and managerial principles pertinent to healthcare and nursing practice. Students explore professional perspectives, norms, and ethical standards essential in values-driven management and leadership.

Max Credits: 3
Min Credits: 3

33.421 Selected Topics in Nursing

Course ID: 37885

Course Details: Selected Topics in Nursing is a course for advanced undergraduates in the RN-BS option. The content will vary from semester to semester depending on the research interest of the faculty member(s) teaching the course.

Max Credits: 3
Min Credits: 3

35.101 Human Anatomy and Physiology I

Course ID: 4746

Course Details: This course provides a basic knowledge of the structure and function of the human body. An overview of the general organization of the body introduces the course. Following a discussion of basic human chemistry, the anatomy and physiology of cells, tissues, organs, and organ systems are studied with special emphasis placed on homeostasis and interaction among the various systems. The topics treated are body plan, chemistry, cytology, histology, the integumentary system, the skeletal system, the muscular system, and the nervous system. Clinical applications will be presented.

Max Credits: 3
Min Credits: 3

35.102 Human Anatomy and Physiology II

Course ID: 4747
Course Details: A continuation of the basic knowledge of human structure and function. The topics treated are cardiovascular system, lymphatic system, respiratory system, endocrine system, digestive system, metabolism, urinary system, and reproductive system.

Max Credits: 3  
Min Credits: 3  

**35.103 Human Anatomy and Physiology Laboratory I**

Course ID: 4748

Course Details: Laboratory exercises are designed to reinforce didactic material by providing hands-on experience with the subject matter. Students actively participate in simple chemical analysis, microscopic observations, and studies of anatomical models and preserved specimens. Students perform simple physiological tests on themselves and work in small groups to discuss conclusions.

Max Credits: 1  
Min Credits: 1  

**35.104 Human Anatomy and Physiology Laboratory II**

Course ID: 4749

Course Details: Laboratory exercises are designed to reinforce didactic material by providing hands-on experience with the subject matter. Students actively participate in simple chemical analysis, microscopic observations, and studies of anatomical models and preserved specimens. Students perform simple physiological tests on themselves and work in small groups to analyze results and discuss conclusions.

Max Credits: 1  
Min Credits: 1  

**35.107 Bodies and Bones**

Course ID: 35013

Course Details: This course is open only to high school students accepted to the UML TEAMS Academy. This course uses an investigative approach to examine concepts related to the fields of Anatomy and Biochemistry. Select topics will be studied and applied to clinical situations and forensic cases. Assessment techniques will be used in hands-on laboratory activities and forensic simulations. The course will emphasize investigations using the scientific method, observation, and critical analysis. This course is open only to high school students accepted to the UML TEAMS Academy.

Max Credits: 3  
Min Credits: 3  

**35.205 Introduction to Nutritional Science**

Course ID: 36735

Course Details: This course introduces students to the major in Nutritional Science. Objectives of the major are covered along with beginning nutritional and food science principles, history of the profession, career options, and legal aspects of practice as a nutrition educator. An integrated survey of nutrition science as it relates to human physiological chemistry, food chemistry and biochemistry will also be discussed. This course will include guest speakers from within the department and outside the university. This course will be restricted to nutritional science majors.

Max Credits: 3  
Min Credits: 3  

**35.206 Human Nutrition**

Course ID: 4756

Course Details: This course provides an overview of nutrition and the components of a nutritious diet during the various stages of the life cycle. It emphasizes the impact of nutrition on the major contemporary health problems in the United States. Nutrition issues, trends and research, and their effect on society and the legislative process will be explored.

Max Credits: 3  
Min Credits: 3
35.210 Nutrition and Health

Course ID: 38081

Course Details: This course is an introductory course to the science of nutrition as it applies to everyday life and health. Focus will include the six major nutrients: carbohydrates, lipids (fats), protein, vitamins, minerals, and water and their importance in the human body. Digestion, absorption, and metabolism in the human body will be introduced. The course will also examine energy balance and weight management as they relate to nutrition and fitness. The impact of culture, demographics and ethnicity on nutritional intake will be discussed. Students will explore the relationship between nutrition and health through laboratory experiences.

Max Credits: 3
Min Credits: 3

35.211 Basic Clinical Microbiology & Pathology

Course ID: 4759

Course Details: Studies the fundamentals of microbiology with major emphasis on structure, function, growth, metabolism, and classification of clinically important microorganisms. The human body's response to invading microbes and an introduction to the ecological aspects of microorganisms in the environment with particular stress on their significance, activities (beneficial and detrimental) and control measures will also be studied.

Max Credits: 3
Min Credits: 3

35.213 Basic Clinical Microbiology & Pathology Laboratory

Course ID: 4760

Course Details: Laboratory investigations of basic properties and characteristics of microorganisms are conducted. Students will perform commonly used techniques for collecting, handling, and studying clinically important microorganisms.

Max Credits: 1
Min Credits: 1

35.251 Physiological Chemistry I

Course ID: 4762

Course Details: This course provides a foundation in basic chemistry for students majoring in the Health Sciences. Basic concepts covered include: properties of matter, energy, atomic and molecular structure, isotopes and radioactivity, chemical bonding, chemical formulae and reactions. Quantitative aspects of chemical processes, chemical equilibrium and the behavior of gases, including blood gases and their transport are discussed. Properties of water and solutions are studied and include units of concentration, osmosis, osmolality, and physiological fluid and electrolyte balance. The chemistry of acids, bases and buffers is reviewed with emphasis on physiological buffer systems. Quantitative aspects, acid/base balance, compensatory mechanisms and elementary diagnosis are discussed. The chemistry of inorganic trace elements and their physiological roles are investigated. Concepts of organic chemistry are introduced, including the structure and function of carbon, isomerism and the properties and selected reactions of the major functional groups important in human biochemistry.

Max Credits: 3
Min Credits: 3

35.252 Physiological Chemistry II

Course ID: 4763

Course Details: This course is designed to provide a foundation in basic biochemistry for students majoring in the Health Professions. Selected concepts in organic chemistry are integrated into this framework. Aspects of amino acid and protein structure are studied. The structure and function of enzymes, their effects on reaction energetics and dynamics and the diagnostic uses of enzyme assays in clinical medicine are covered. The plasma proteins, hemoglobin, and the structure and function of miscellaneous cellular proteins are reviewed. The chemistry of the nucleic acids, protein anabolism and catabolism are studied along with selected metabolic disturbances and genetic disease. The structure and chemical properties of the simple and complex carbohydrates and lipids their metabolic pathways and cycles, and selected pathologies are studied in detail. Diagnostic tests relating to carbohydrate and lipid abnormalities are included. The course concludes with a study of chemical communication mechanisms, which includes neurotransmitters, hormonal secretions, and immunoglobulins.
35.253 Physiological Chemistry Laboratory I

Course ID: 4764

Course Details: Laboratory experiments are conducted to complement the material covered in 35.251. Exercises dealing with properties of matter, chemical equations, qualitative analysis, energy, osmosis, chemical equilibrium and acids/bases/buffers will be performed. The qualitative properties of alcohols, aldehydes, ketones, acids and esters will be explored.

Max Credits: 1
Min Credits: 1

35.254 Physiological Chemistry Laboratory II

Course ID: 4765

Course Details: Laboratory experiments are conducted to complement the material covered in 35.252. The chemistry of the basic biochemical molecules will be explored, including proteins, enzymes, carbohydrates, lipids, and nucleic acids. Selected aspects of metabolism and the assay of clinically significant materials will be studied.

Max Credits: 1
Min Credits: 1

35.435 Medical & Clinical Genetics

Course ID: 4773

Course Details: This course covers the clinical and pathological aspects of human genetics with emphasis on prevention, diagnosis, and treatment of genetic diseases. Mendelian, cellular, and molecular genetics are reviewed, as is the metabolic basis of inherited diseases. Students learn principles of genetic counseling and how they integrate with other health care disciplines. These genetic counseling precepts are applied when students research and analyze a condition occurring in their own family, and write a report that embodies the results of this research. Following a review of DNA chemistry and dynamics, molecular alterations that cause human diseases is extensively discussed, including SNP activity, gene therapy techniques, and epigenetic mechanisms. Transcription and translation, the "switching on and off" of genes, and other DNA activity is discussed. The genetics of cancer, somatic cell genetics, and immunogenetics are integrated into genetic counseling. Laboratory techniques such as autoradiography, DNA extraction and analysis by electrophoresis, DNA profiling, automated DNA sequencing, RFLP analysis, PCR amplification, microarray analysis, and cloning methodology are presented. Pre-implantation diagnosis, germ-line alteration, and embryo cloning will also be discussed, along with their legal, ethical, and moral implications. Current progress on the Human Proteome, Transcriptome, and Kinome Projects will also be reported. Applications of genomics will be pervasive throughout the course.

Max Credits: 3
Min Credits: 3

36.241 Clinical Laboratory Theory

Course ID: 4777

Course Details: This course is designed to introduce the theoretical principles and applications of diagnostic techniques and the procedures of the clinical laboratory including phlebotomy. It will define and describe both qualitative and quantitative, manual and automated laboratory techniques, particularly in hematology.

Max Credits: 3
Min Credits: 3

36.243 Clinical Laboratory Theory Lab

Course ID: 4778

Course Details: A laboratory course designed to expose prospective clinical scientists to many of the essentials skills, methods, and procedures basic to professional performance in the clinical laboratory; to explain and demonstrate to students and have them perform these methods; to develop an understanding of these techniques and to provide a technical background, an approach to testing that the student can build upon and use in future courses.

Max Credits: 1
36.273 Introduction to Clinical Laboratory Science

Course ID: 4780

Course Details: This course is intended to provide the student with an overview of the medical laboratory. Topics include the history of the field, hospital and laboratory professional organizations, state and federal regulations, and careers in the clinical setting, in research and in industry. The role of the medical laboratory scientist in the clinical setting will be explored further through examination of each laboratory department.

Max Credits: 2
Min Credits: 2

36.311 Medical Bacteriology I

Course ID: 4783

Course Details: A study of the cultural, biochemical, genetic, serological and pathogenic characteristics of disease producing microorganisms. Emphasis will be placed on the pathophysiology of the infectious diseases and their relationship to isolation and identification of the pathogenic microorganisms.

Max Credits: 3
Min Credits: 3

36.313 Medical Bacteriology Laboratory I

Course ID: 4784

Course Details: This course is designed to introduce the student to pathogenic microorganisms, media and techniques used in the identification of these organisms. Emphasis will be based upon the isolation, identification and differentiation of pathogenic microorganisms common to man. In addition, quality control and antimicrobial susceptibility testing will be covered.

Max Credits: 2
Min Credits: 2

36.321 Clinical Hematology

Course ID: 4786

Course Details: A study of the human hematopoietic system and its relationship to other organ systems. Discussions will include morphological and biochemical relationships of erythropoiesis and leukopoiesis in health and disease states. A study of the mechanics of blood coagulation as it relates to health and disease states will also be included.

Max Credits: 3
Min Credits: 3

36.323 Clinical Hematology Laboratory

Course ID: 4787

Course Details: This course is designed to emphasize current hematological and coagulation procedures used in today's clinical laboratory. The implications of these tests to diagnose, monitor and evaluate the various hematological disorders are also discussed.

Max Credits: 2
Min Credits: 2

36.331 Clinical Immunology

Course ID: 4788

Course Details: An introduction to the principles of immunology including: the study of antigens and antibodies and their interactions and controls; description of cellular events and the immune response, and in vivo and in vitro antigen-antibody interactions with clinical relevance. Immunological aspects of transplantation, autoimmune disease, immunodeficiencies and cancer pathogenesis are also discussed.
36.336 Life Cycle Nutrition

Course ID: 37040
Course Details: Biology of the life cycle including development, growth, maturation, and aging and its impact on nutritional requirements of humans from the zygote to the elderly is considered. How to meet these nutritional requirements is discussed relative to the feeding issues and context of each major life stage. Course emphasizes the critical analyses of beneficial and adverse outcomes of various nutrient intakes and dietary patterns of the nutritional status and well-being through integration of nutrition and other health sciences in understanding nutritional needs during the life cycle. Analysis of cultural, environmental, psychosocial, physical, and economic factors affecting nutritional status through the life span will also be discussed. Methods of nutritional assessment for each stage of the life cycle will be examined.

36.341 Organic Reactions & Structure

Course ID: 4789
Course Details: This course surveys the principles of organic chemistry important for the study of clinical chemistry and human biochemistry. The chemistry of carbon compounds, bonding and the concepts of isomerism will be studied. Detailed information is presented on each of the major functional classes of organic compounds, including: hydrocarbons, halides, alcohol, phenols, ethers, aldehydes, ketones, carboxylic acids and their derivatives, amines, organosulfur compounds. Emphasis is placed on chemical structure, physical and chemical properties, common and IUPAC nomenclature, and chemical reactions and their mechanisms. Selected aspects of the properties and synthesis of polymeric materials are presented. Qualitative analysis of organic compounds is discussed with emphasis on the use of spectral techniques, including infra-red and nuclear magnetic resonance spectroscopy for the elucidation of chemical structure.

36.343 Organic Reactions & Structure Laboratory

Course ID: 4790
Course Details: Laboratory exercises are performed to supplement the material covered in 36.341.

36.345 Community Nutrition

Course ID: 36921
Course Details: This course explores the role of the nutrition professional in community needs assessment, intervention development and evaluation, and in forming domestic nutrition policy. Nutrition problems in contemporary communities and of selected target groups in the United States and in developing countries are examined. Programs and strategies to meet nutrition needs outside the acute care setting, such as nutrition education and food assistance are explored. Local, state, and national nutrition policy and initiatives in nutrition will also be examined.

36.350 Human Biochemistry

Course ID: 4791
Course Details: This course is an in-depth study of biochemical substances and their reactions in the body, with major emphasis placed on metabolism at the cellular level and examined in the tissues of the various organs where these reactions occur. Correlation of biochemical processes underlying pathologic conditions will be made whenever practical.
36.351 Clinical Chemistry I

Course ID: 4792

Course Details: This course is designed to provide students with knowledge and theory of techniques used in the Clinical Chemistry laboratory for measurement of aminoacids, proteins, carbohydrates, and lipids in body fluids. Students will learn to use, interpret and evaluate the performance of these laboratory methods and develop the ability to recognize levels of these biochemical components in both normal and pathophysiological states. Examination and comparison of laboratory results will be used to diagnose or rule out disease. Techniques reviewed range from general to specific assays and from the classical to state-of-the-art methodologies. In addition, students will be able to assess the quality of laboratory generated values determine when values are invalid and suggest ideas to troubleshoot clinical laboratory methods.

Max Credits: 3
Min Credits: 3

36.353 Clinical Chemistry Laboratory I

Course ID: 4793

Course Details: This course is designed to introduce the clinical techniques of biochemical measurement in body fluids. These techniques range from general to specific assays and from the classical to the up-to-date state of the art methodologies. Biochemical measurements of the following in the normal state and alterations due to pathophysiology are discussed: amino acids, proteins, carbohydrates and lipids. Quality control of assay procedures is emphasized.

Max Credits: 2
Min Credits: 2

36.361 Clinical Laboratory Instrumentation

Course ID: 4794

Course Details: This course is designed to provide an in-depth knowledge of clinical chemistry laboratory instrumentation. Emphasis is placed on theoretical concepts, instrument components and design, calibration and troubleshooting of modern instrumentation, and analytical methodologies in the clinical laboratory. Additionally, qualitative and quantitative applications of instrumental techniques are covered. Computer applications are included where appropriate. The following spectroscopic instruments are studied: ultraviolet, visible and infra red absorption, fluorescence, turbidimetry and nephelometry, reflectance, flame emission and atomic absorption spectroscopy. Electrochemical methods of analysis are reviewed, including potentiometric techniques, voltammetry and coulometry. Chromatographic instrumentation and methods are discussed, such as column and thin layer chromatography, high pressure liquid chromatography, gas chromatography, and ion exchange chromatography.

Max Credits: 3
Min Credits: 3

36.363 Clinical Laboratory Instrumentation Laboratory

Course ID: 4795

Course Details: Laboratory exercises will be performed to supplement the material covered in 36.361.

Max Credits: 2
Min Credits: 2

36.371 Nutrition and Metabolism

Course ID: 4796

Course Details: This class is advancement into the biochemical and physiologic process through which the nourishment of the human organism is accomplished and how the interactions among nutrients, other aspects of the environment, and the body result in perturbations affecting human health. The process of human nourishment proceeds within the context of an organism with an intricate structure, unique composition, and specific capacities for adaptive change. Basic information from many disciplines relating to body function and structure will be summarized. This will serve as setting the stage for detailed discussions, which describe the nutritional biochemistry and metabolism of the body for the normal state, and for states where nutrient availability is altered of disease is imposed.

Prerequisites: 35.206
36.372 Obesity & Weight Control

Course ID: 4797

Course Details: Etiology, pathophysiology, and treatments of obesity, anorexia nervosa, and bulimia are reviewed. Role of hereditary, neurological, metabolic, and environmental mechanisms are discussed. Particular emphasis on obesity.

Max Credits: 3
Min Credits: 3

36.373 Clinical Laboratory Sciences Seminar

Course ID: 4798

Course Details: This course is designed to familiarize the student with different interview skills and approaches to resume writing, the process of implementing a laboratory information system, good education practices and team building skills. Students will evaluate current research designs and work in a team to create a presentation to express their opinions as educated consumers.

Max Credits: 1
Min Credits: 1

36.406 Biochemistry of Lipids

Course ID: 4799

Course Details: This advanced course in the nutritional biochemistry and physiology of lipids will detail the role of lipids in the normal and pathological processes at both the cellular and whole organism level. Topics will range from general discussions of the digestion, absorption and transport of lipids to the role of eicosanoids and lipid soluble antioxidants during normal and diseased states, such as atherosclerosis, diabetes and hypertension. Subject matter will also include a discussion of the various interventions for the prevention and treatment of certain of these disease states. There will also be discussion of the current issues in lipid nutrition.

Max Credits: 3
Min Credits: 3

36.410 Clinical Microbiology Practicum

Course ID: 4801

Course Details: Supervised clinical training in an affiliated clinical laboratory, designed to reinforce knowledge and skills gained in lecture and laboratory and at the same time introduce the student to the daily activities of the clinical microbiology laboratory. Emphasis will be placed on quality control, methodology and clinical interpretation.

Max Credits: 2
Min Credits: 2

36.411 Medical Mycology & Parasitology

Course ID: 4802

Course Details: Intensive study of classification, morphology, physiology, genetics and ecology of medically important fungi and parasites. Emphasis on epidemiology, pathogenicity and diagnosis.

Max Credits: 3
Min Credits: 3

36.413 Medical Mycology & Parasitology Laboratory

Course ID: 4804

Course Details: The laboratory is designed to emphasize principles and procedures used in the isolation, cultivation, and identification of medically important fungi and parasites.
36.414 Infectious Disease

Course ID: 4805

Course Details: The course is designed for students in the health and biological sciences and is offered for both undergraduate and graduate students. A general microbiology course is advised as a prerequisite. The focus of the course is the pathophysiology of infectious disease. Major infectious organisms will be discussed as biological models and presented in the way they affect major systems of the body. Emphasis will be placed on significant episodes of emerging infections and current technology in diagnosis and treatment of infectious disease in the new millennium.

Max Credits: 3
Min Credits: 3

36.416 Molecular Diagnostics Lab

Course ID: 4807

Course Details: This course is designed to instruct students in the principles and techniques used in Molecular Diagnostics in the clinical laboratory setting. Students will be given both lecture and laboratory instruction in basic molecular testing methodologies. At the completion of this course, the student will have a basic understanding of molecular diagnostic principles and will be proficient in molecular diagnostic laboratory techniques including DNA extraction, PCR using SINEs and STRs, restriction enzyme digestion, ELISA, bacterial transformation, DNA sequencing and microarrays.

Max Credits: 1
Min Credits: 1

36.420 Clinical Hematology Practicum

Course ID: 4808

Course Details: Supervised clinical training in an affiliated clinical laboratory. Designed to reinforce knowledge and skills gained in lecture and laboratory and at the same time introduce the student to the daily activities of a clinical hematology laboratory. Emphasis will be placed on quality control, methodology, and clinical interpretation and correlation.

Max Credits: 2
Min Credits: 2

36.430 Clinical Immunohematology Practicum

Course ID: 4809

Course Details: Supervised clinical training in an affiliated clinical laboratory is designed to reinforce knowledge and skills gained in lecture and laboratory and, at the same time, introduce the student to the daily activities of the clinical immunohematology laboratory. Emphasis will be placed on quality control, methodology and clinical interpretation and correlation.

Max Credits: 2
Min Credits: 2

36.431 Clinical Immunohematology

Course ID: 4810

Course Details: Lecture and case study discussions look at the major red cell antigen/antibody systems that are of importance in understanding transfusion therapies, blood antigen and antibody testing, compatibility testing, and pathological diseases. Emphasis is on differentiation and clinical significance of each system. Donor selection regulations, component preparation, adverse transfusion reactions, and hemotherapy will also be discussed.

Max Credits: 3
Min Credits: 3

36.433 Clinical Immunohematology Laboratory
Course ID: 4811

Course Details: Practical laboratory experience in blood banking, illustrating the concepts stressed in the lecture including ABO and Rh typing, identification of other red cell antigens, antibody screening and identification, direct antiglobulin testing, crossmatching, and other techniques performed in the Clinical Immunohematology laboratory.

Max Credits: 2
Min Credits: 2

36.434 Advanced Topics in Hemostasis

Course ID: 4812

Course Details: This course will constitute an in depth study of the hemostatic mechanism. Current research and case studies on the roles of vessel endothelium, platelet function, clotting procoagulants and fibrinolysis will be presented. Students will diagnose pathologic hemostatic states, such as hemorrhage or thrombophilia, due to deficiencies and impairments of these roles, including the impact of natural and acquired anticoagulants/inhibitors and anticoagulant therapy.

Max Credits: 1
Min Credits: 1

36.450 Clinical Chemistry Practicum

Course ID: 4814

Course Details: Supervised clinical training in an affiliated hospital clinical laboratory. Designed to reinforce knowledge and skills gained in lecture and laboratory and at the same time introduce the student to the daily activities of the clinical laboratory. Emphasis will be placed on quality control, methodology and clinical interpretation and correlation.

Max Credits: 2
Min Credits: 2

36.451 Urinalysis Practicum

Course ID: 4815

Course Details: A one-week clinical rotation in an affiliated laboratory designed to give the student experience in microscopic examination and evaluation of urine sediments. Emphasis is on correlating physical and chemical characteristics with sediment evaluation and diagnoses as well as on quality control, methodology, and clinical interpretation and correlation. Additional routine tests of a physical and chemical nature will be performed and demonstrated.

Max Credits: 0
Min Credits: 0

36.452 Clinical Chemistry II

Course ID: 4816

Course Details: This course will provide students with knowledge and theory of techniques associated with determinants of acid-base balance, blood gases, electrolytes, osmolality, hemoglobin, toxicology, therapeutic drug monitoring and endocrinology. Students learn to interpret and evaluate the performance of these laboratory methods and develop the ability to recognize levels of these biochemical components in both normal and pathophysiological states. Laboratory techniques range from general to specific assays and from the classical to state-of-the-art methodologies. In addition, students will be able to assess the quality and validity of laboratory generated values, determine when values are invalid and suggest ideas to troubleshoot methodologies. Students will also be able to produce and analyze statistical data for use in correlation, comparison and evaluation of laboratory techniques. Prerequisite: 35.351

Max Credits: 3
Min Credits: 3

36.453 Laboratory Management and Ethics

Course ID: 4817

Course Details: This course will acquaint the student with the many managerial, educational, technical, and administrative theories and practices, as well as moral and ethical issues that may confront the health care professional functioning within a clinical or research laboratory setting. In addition, it will present the varied career opportunities that are available for graduates.
Max Credits: 2
Min Credits: 2

36.454 Clinical Chemistry Laboratory II

Course ID: 4818

Course Details: This course, a continuation of 36.353, is designed to instruct the student in the analytical procedures and methods currently used in the clinical laboratory. Manual and automated methods utilized in the assessment of such topics as acid-base balance, porphyrins, toxicology and vitamins will be introduced. In addition, methods associated with the routine examinations of urine and other body fluids will be introduced. Quality control, laboratory safety and professional performance are emphasized.

Max Credits: 2
Min Credits: 2

36.463 Vitamins and Minerals

Course ID: 4819

Course Details: Detailed analysis of the digestion, absorption, transport, and intermediary metabolism of vitamins and minerals as essential nutrients. The chemical and biochemical characteristics of vitamins and minerals are examined to account for the physiological functions.

Max Credits: 3
Min Credits: 3

36.465 Lab Methods in Nutrition Assessment

Course ID: 31884

Course Details: This course provides the student the opportunity to assess nutritional status using several modern analytical methods. The course uses spectrophotometry, HPLC and automated procedures to assess the status of vitamins, lipids, iron, glucose, and insulin. The student will learn the mathematical calculations needed for the methods. This course enables the student to appreciate how nutrient analysis is designed and implemented in the analytical laboratory.

Max Credits: 3
Min Credits: 3

36.472 Nutrition and Gene Expression

Course ID: 4821

Course Details: Regulation of eukaryotic gene expression by specific nutrients, hormones, and metabolites will be discussed. Transcriptional, post-transcriptional, and translational mechanisms of specific nutrients with emphasis in disease development or prevention.

Max Credits: 3
Min Credits: 3

36.474 Senior Seminar

Course ID: 4823

Course Details: This course is designed to familiarize the student with different types of questions used in the national certification exams and to give the student the opportunity to practice taking mock certification examinations.

Max Credits: 1
Min Credits: 1

36.481 Medical Nutrition Therapy I

Course ID: 4824

Course Details: This course is intended to provide students with current knowledge and application in dietary prevention, treatment, and
long-term management of obesity, diabetes, cardiovascular diseases, and upper gastrointestinal diseases. Topics include nutrition counseling and communication skills, professional ethics, medical terminology, clinical laboratory values, dietary menu planning and analysis in specific situations, evaluating nutritional status, case studies for these diseases. This course will stress the steps in the nutrition care process, determine appropriate methods for screening patients for nutritional risk, and help the student assess the nutritional status of patients.

Max Credits: 3
Min Credits: 3

36.482 Medical Nutrition Therapy II

Course ID: 37039

Course Details: This course is a continuation of Medical Nutrition Therapy I that will provide students with current knowledge and application in dietary prevention, treatment, and long-term management of patients with trauma, burns, HIV, cancer, liver, lower gastrointestinal diseases, celiac disease, and renal diseases. Topics include nutrition counseling and communication skills, professional ethics, medical terminology, clinical laboratory values, dietary menu planning and analysis in specific situations, evaluating nutritional status, case studies for these diseases, and will examine enteral and parental nutrition support for critically ill patients. Students will also develop a basic knowledge related to the principles of fluid and electrolytes balance as well as acid-base balance as they relate to the nutritional care of patients/clients.

Max Credits: 3
Min Credits: 3

36.483 Senior Research

Course ID: 4825

Course Details: Students along with their faculty advisor will structure a research project commensurate with the students' areas of interest. A paper embodying the results of the research project will be prepared.

Max Credits: 2
Min Credits: 2

36.484 Senior Research

Course ID: 4826

Course Details: Continuation of 36.483

Max Credits: 2
Min Credits: 2

36.493 Clinical Laboratory Sciences Directed Studies

Course ID: 4827

Course Details: Students along with their faculty advisor will structure an acceptable project in one of four areas: research, program development, teaching, or clinical practicum. Students are eligible to earn three credits in accordance with departmental policy.

Max Credits: 3
Min Credits: 3

36.494 Directed Research in Nutrition

Course ID: 4828

Course Details: Students with their faculty advisor structure a research project in the area of nutrition. A paper embodying the results of the project will be prepared.

Max Credits: 3
Min Credits: 3

36.496 Senior Research in Nutrition
38.101 Freshman Seminar

Course Details: The Freshman Seminar will introduce new students to UMASS Lowell, the College of Health Sciences. Class participants will participate in weekly activities to improve study skills, communication skills, and problem solving. They will also learn important information about careers in Exercise Physiology and health-related fields.

Max Credits: 1
Min Credits: 1

38.202 Introduction to Exercise Physiology

Course Details: This course introduces students to the major in Exercise Physiology. Objectives of the major are covered along with beginning fitness principles, history of the profession, career options, and legal aspects of practice. All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Max Credits: 3
Min Credits: 3

38.301 Junior Seminar

Course Details: The Junior Seminar, offered spring semester to Exercise Physiology majors, will orient students to information required for their Practicum experience during their Senior Year.

Max Credits: 1
Min Credits: 1

38.305 Exercise Physiology I

Course Details: This first course of a two-course sequence will examine the short and long term effects of exercise on the oxygen transport systems. The lecture portion of this course will introduce the students to understanding the concepts of physiological and metabolic functioning of the human body during all forms of physical activity. Students taking this course are advised that the capability to exercise moderately and maximally will be necessary. All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Max Credits: 4
Min Credits: 4

38.307 Exercise Physiology I Laboratory

Course Details: This course must be taken concurrently with 38.305. It offers students the opportunity to test and evaluate physiological concepts and skills discussed in the lecture. Student physical examinations completed prior to each academic year should include cardiopulmonary status indicating exercise capability. Documentation must be provided to the Department prior to entering this laboratory course. All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Max Credits: 1
Min Credits: 1

38.315 Kinesiology
Course ID: 1250

Course Details: This course combines the study of mechanics, kinematics, kinetics, anatomy and neuromuscular physiology to teach the examination and evaluation of human movement. The major focus of the course is in qualitative evaluation of movement. Topics also include quantitative evaluation, body mechanics, posture and gait evaluation with a focus on identification of abnormal movement patterns. All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Max Credits: 3
Min Credits: 3

38.317 Kinesiology Laboratory

Course ID: 4884

Course Details: All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Max Credits: 1
Min Credits: 1

38.356 Pharmacology

Course ID: 31962

Course Details: All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Max Credits: 3
Min Credits: 3

38.406 Exercise Physiology II

Course ID: 1249

Course Details: This course provides a continuation of Exercise Physiology I and deals with the short and long effects of exercise on the skeletal and neuromuscular systems. This portion of the sequence also provides an integration of the physiological systems when considering the effect of exercise. All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Max Credits: 4
Min Credits: 4

38.408 Exercise Physiology II Laboratory

Course ID: 4887

Course Details: This course is designed to provide the student with hands on experience in a variety of laboratory techniques and field techniques for the assessment of human performance. All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Max Credits: 1
Min Credits: 1

38.412 Clinical Practicum I and II

Course ID: 4888

Course Details: This course is an off-campus experience in either a cardiac/pulmonary rehab clinical facility or fitness setting. Students experience practical applications of the concepts and theories learned in the classroom settings. All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Max Credits: 4
Min Credits: 4

38.417 Research Methods in Exercise Physiology

Course ID: 4889
Course Details: This course involves an in-depth study of current research methods and topics with specific applications to the field of Exercise Physiology. The content includes the sources of data acquisition, research design, testing procedures, and treatment of data. Each student must participate in a senior research project utilizing information gained from the lecture portion of the class. All 1st 2nd and 3rd year course work in the exercise physiology major. All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Max Credits: 3
Min Credits: 3

38.418 Senior Seminar

Course ID: 4890

Course Details: The Senior Seminar, offered concurrently with 38.412 Clinical Practicum, will be an on-campus discussion of the practicum experience.

Max Credits: 3
Min Credits: 3

38.420 Advanced Study in Exercise Physiology

Course ID: 4891

Course Details: This course is a capstone course in Exercise Physiology. Students summate and synthesize classroom and clinical experiences in Exercise Physiology in the preparation of a final project. All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Max Credits: 3
Min Credits: 3

38.421 Directed Study Health Promotion

Course ID: 30347

Course Details: All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Max Credits: 3
Min Credits: 3

38.422 Exercise Prescription & Programming

Course ID: 4892

Course Details: This course provides an essential foundation for exercise prescription and programming, and sound educational practice. Factors that impede or enhance exercise compliance and progress are explored. Clinical teaching skills, safety, and professional behavior are also addressed. All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.

Max Credits: 3
Min Credits: 3

19.301 Clinical Research Methods

Course ID: 38159

Course Details: In this course, health science students learn to apply critical evaluation skills to quantitative data analysis and interpretation of research findings. The course reviews statistics and research methods, making students aware of the importance of the distribution of a range of types of quantitative data encountered in the health sciences. Sources of uncertainty (bias, confounding, and effect modification) and planning and analytical methods to minimize and summarize uncertainty will be summarized.

Max Credits: 3
Min Credits: 3

30.219 Emergency Medical Technician
Course ID: 4450
Course Details:
Max Credits: 3
Min Credits: 3

30.331 Exercise Physiology Laboratory

Course ID: 4463
Course Details:
Max Credits: 1
Min Credits: 1

30.406 Exercise Physiology II

Course ID: 1249
Course Details: This course provides a continuation of Exercise Physiology I and deals with the short and long effects of exercise on the skeletal and neuromuscular systems. This portion of the sequence also provides an integration of the physiological systems when considering the effect of exercise. All exercise physiology undergraduate courses (number 38) are restricted to EP majors only.
Max Credits: 4
Min Credits: 4

31.302 Applied Technology in Health Promotion

Course ID: 4480
Course Details: This course discusses the uses of information and media technology in health promotion such as mobile devices, GIS (global information systems) for health mapping, social media, and other emerging technologies. Students will explore the ethical considerations pertinent to the use of such technologies in health promotion. The course discusses the concepts of health literacy and the implications of electronic information related to health literacy. Juniors only.
Max Credits: 3
Min Credits: 3

33.101 Strategies for Acad Success

Course ID: 33747
Course Details: This introductory course will assist nursing students to learn strategies for creating greater academic, professional, and personal success. Specific attention will be given to exploring the profession of nursing, academic integrity, goal setting, time management, critical thinking and communicating with others. Consideration will be given to note taking skills, test reading and studying, writing, test-taking strategies, library use and research techniques, wellness and stress management, and campus resources.
Max Credits: 1
Min Credits: 1

33.103 Academic Strategies Portfolio Seminar

Course ID: 35273
Course Details: Nursing students with a diploma in nursing, associate degree in nursing, or second baccalaureate degree will submit a portfolio to demonstrate how they have met the course objectives. The portfolio will show evidence of goal setting and time management, UML library orientation for literature searches, understanding of academic integrity and writing and referencing using APA style. Students will participate in seminar(s) on communication, cultural sensitivity, and conflict resolution.
Max Credits: 1
Min Credits: 1

33.310 Health Promotion Risk Reduction Families I
Course ID: 4553
Course Details: This course focuses on health promotion and risk reduction with young individuals and families who are responding to potential or actual physical and psychosocial health problems. Content is centered on holistic nursing care from a lifespan perspective beginning in pregnancy and ending with adolescence.
Max Credits: 5
Min Credits: 5

33.314 Health Promotion Risk Reduction Families II
Course ID: 4557
Course Details: This course focuses on health promotion and risk reduction with young individuals and families who are responding to potential or actual physical and psychosocial health problems. Content is centered on holistic nursing care from a lifespan perspective beginning in pregnancy and ending with adolescence.
Max Credits: 5
Min Credits: 5

33.410 Acute Care Nursing
Course ID: 4567
Course Details: This course addresses the nursing care of adults with life threatening conditions. Particular attention is paid to nursing care of clients with increasing complexity and acuity levels.
Max Credits: 5
Min Credits: 5

33.411 Acute Care Nursing Practicum
Course ID: 4568
Course Details: In this clinical course, students provide nursing care to adults in the acute care setting. The focus of the experience is the development of specifically tailored therapeutic interventions in providing care to adults with acute illness.
Max Credits: 4
Min Credits: 4

33.414 Role Transition Practicum
Course ID: 4571
Course Details: During this clinical experience the student works collaboratively with nurse preceptor and other members of the health team. The student becomes increasingly self-directed in carrying out the professional nursing role.
Max Credits: 6
Min Credits: 6

33.415 Community Health Project
Course ID: 4572
Course Details: The student applies the ANA Public Health Nursing Scope and Standards of Nursing Practice with community as client. Teams of students utilize community assessment data collected from previous semester to develop, implement and evaluate a community health promotion activity.
Max Credits: 2
Min Credits: 2

36.415 Clinical Virology/Serology Lab
Course ID: 4806
Course Details: This course is designed to survey pathogenic viruses emphasizing diagnosis of disease. Evaluation of new technology
and diagnostic tests with reference to diagnosis and prognosis of disease are examined. In addition, this course is designed to instruct students in the principles and techniques used in the clinical immunology/serology setting. Students will become proficient in laboratory techniques such as immunodiffusion, ELISA, hemagglutination, and neutralization techniques used for immunodiagnosis..."

Max Credits: 2
Min Credits: 2

**36.483 Senior Research I**

Course ID: 4825

Course Details: Students along with their faculty advisor will structure a research project commensurate with the students' areas of interest. A paper embodying the results of the research project will be prepared.

Max Credits: 2
Min Credits: 2

**36.484 Senior Research II**

Course ID: 4826

Course Details: Continuation of 36.483

Max Credits: 2
Min Credits: 2

**30.222 Health and Disease Across the Lifespan**

Course ID: 38578

Course Details: This course will introduce the basic principles that promote health of individuals throughout the lifespan. Physiological, socioeconomic, economic, and behavioral factors that impact health, disease, and quality of life across the lifespan will be examined. Health assessment tools will be reviewed. The course emphasizes the role of nutrition and physical activity for health promotion and disease prevention across different life stages and the impact of aging on health and disease. Major causes of morbidity and mortality in the United States will be discussed.

Max Credits: 3
Min Credits: 3

**PUBH.101 Public Health Seminar**

Course ID: 38616

Course Details: This course is designed to orient first year Public Health students to the College of Health Sciences and the University as a whole. The general purpose of the course is to help students identify their areas of interest in Public Health and teach students valuable skills that will maximize their likelihood of success in achieving their academic and professional goals. Areas of priority will be time management and study skills, critical thinking, and communication.

Max Credits: 1
Min Credits: 1

**PUBH.221 Health Policy**

Course ID: 38615

Course Details: This introductory course will provide students with an overview of the healthcare systems that are currently utilized to provide coverage to Americans with emphasis on existing disparities. Students will also review policies that are developed and implemented to enhance the current health care system. An analysis of how healthcare coverage and costs differs between the US and other developed nations will also be covered in this course.

Max Credits: 3
Min Credits: 3

**PUBH.310 Communicable Diseases and Environmental Health**
Course ID: 38611
Course Details: This course introduces students to the fundamentals of communicable diseases and how humans and the environment affect their distribution and impact. The course will provide an overview of infectious diseases including how they affect humans, their vectors and sources. Communicable disease investigation and tracking, as well as prevention planning and response will be discussed. The course covers the following aspects of communicable disease: the public health significance; overview of Immunology and disease development and transmission; sources and carriers of disease, outbreak investigation, and disease control and prevention.

Max Credits: 3
Min Credits: 3

**PUBH.311 Toxicology for Environmental Health**

Course ID: 38610

Course Details: This course introduces students to the principles of toxicology in the context of environmental health. The course will introduce basic principles and mechanisms of toxicology with review of necessary human biology. Toxicology of major organ systems (e.g. respiratory, neurological, immunological, cardiovascular) will be reviewed and presented in the context of major occupational and environmental diseases. The toxic responses of major workplace and environmental health hazards including toxic chemicals, physical agents, biological agents, and their mechanisms of action will be discussed. The course will focus on case examples of toxic agents and their impacts. New directions in toxicology and communicating toxicology will be explored.

Max Credits: 3
Min Credits: 3

**PUBH.331 Occupational Health and Safety I**

Course ID: 38617

Course Details: This is the first semester of a two-semester undergraduate course sequence that provides an overview of the field of occupational health and safety. This course focuses on safety and ergonomics. The identification and control of hazards in the workplace and the safety of consumer products will be explored. Students will discuss the detection and reduction of hazards in the workplace to prevent negative impacts on health.

Max Credits: 3
Min Credits: 3

**PUBH.332 Occupational Health and Safety II**

Course ID: 38614

Course Details: This is the second semester of a two-semester undergraduate course that provides an overview of the field of occupational health and safety. This course focuses on occupational hygiene and includes the recognition and evaluation of health hazards, and the control of health hazards including the use of protective equipment and ventilation systems. A laboratory for the course (PUBH333) allows the student to apply course content in the laboratory setting.

Max Credits: 3
Min Credits: 3

**PUBH.333 Occupational Health and Safety II Laboratory**

Course ID: 38613

Course Details: This is the laboratory associated with Occupational Health and Safety II. It is designed to provide the students with practical hands-on experience in the various technical topics taught in Occupational Health and Safety I and II. Students will collect and measure noise, gas, vapor, and aerosol samples and evaluate performance of personal protective equipment. The laboratory meets for three hours once a week. Actual laboratory exercises will be held every other week, followed the next week by a discussion of the results from the previous week.

Max Credits: 1
Min Credits: 1

**PUBH.410 Water, Sanitation, and Public Health**

Course ID: 38612
Course Details: This course introduces students to the critical role of water and water sanitation in protection of public health. The course will provide an overview of the basics of water treatment systems and the role of local public health professionals in water preservation. Students will be introduced to the importance of water and the global water crisis; the basic principles of water hydrology and the connection between surface and ground water; water chemistry, microbiology and common contaminants in water supplies (nutrients, pathogens, and chemicals); water and waste water treatment and protection systems (including storm-water runoff, pools and beaches), their functioning, regulation, and testing; and the emerging issues in water protection, such as hydrofracking. The course is supplemented

Max Credits: 4
Min Credits: 4

**PUBH.604L Geographic Information Systems (GIS) for Health Lab**

Course ID: 38628

Course Details:

Max Credits: 1
Min Credits: 1