DEPARTMENT OF MEDICAL LABORATORY AND RADIATION SCIENCES

http://www.uvm.edu/~cnhs/mlrs/

Programs in the Department of Medical Laboratory and Radiation Sciences lead to Bachelor of Science degrees in Medical Laboratory Science and Medical Radiation Sciences. A core curriculum of approximately forty credits serves students in both programs.

The B.S. in Medical Laboratory Science offers two concentrations: Clinical Laboratory Science or Public Health Laboratory Science. The B.S. in Medical Radiation Science offers three concentrations: Radiation Therapy, Nuclear Medicine Technology, or a non-clinical concentration.

Graduates of all three programs are prepared for immediate employment, as well as the pursuit of post-baccalaureate education in the health sciences or professional education in fields such as medicine. Courses in the humanities and basic sciences are taken in the department and throughout the university, including the College of Medicine.

Requirements for admission are the same as the general university requirements, with the addition that applicants must have taken high school biology, mathematics through trigonometry or precalculus, and chemistry; physics is highly recommended.

An online Bachelor of Science degree in Health Sciences is also offered as an option for students who have previously earned at least one year of college credit (30 credit hours) with a minimum GPA of 3.0.

MAJORS

MEDICAL LABORATORY AND RADIATION SCIENCES MAJORS

Health Sciences B.S.

Medical Laboratory Science B.S.

Medical Radiation Sciences B.S.

Health Sciences Courses

HSCI 096. Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

HSCI 101. Issues in Cont. Public Health. 3 Credits.
Introductory investigation of public health. Explores the development and scope of the discipline of public health and issues that have been raised with regard to the practice of public health.

HSCI 102. Epidemics in Hist & Imaginatn. 3 Credits.
Explores epidemic disease through the lens of history and fiction. Students will learn about what makes a disease epidemic or pandemic, how the causes of disease have been discovered, and interventions to stop the spread of disease.

HSCI 130. Health Promotion. 3 Credits.
An overview of health promotion across the lifespan, from local, national and global perspectives. Examination of the influences on health and risk, strategies to promote health, and evaluation of outcomes. Students will engage in 8-10 hours of service learning.

HSCI 140. Struct & Finan of US Hlthcare. 3 Credits.
Organization and financing of the U.S. health care system; discussion of current issues in health reform.

HSCI 195. Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

Medical Lab Radiation Sci Courses

MLRS 034. Human Cell Biology. 0 or 4 Credits.
Lecture and laboratory experiences about molecular and cellular structure, function and physiology using human cells as the model.

MLRS 054. Principles of Microbiology. 3 Credits.
Lectures dealing with the structure, physiology, and control of microorganisms, in particular those of medical importance.

MLRS 056. Principles of Microbiology Lab. 1 Credit.
Laboratory experiences dealing with the structure, physiology, and control of microorganisms, particularly those of medical importance. Prerequisite: MLRS 054.

MLRS 095. Special Topics. 1-12 Credits.
See Schedule of Courses for specific titles.

MLRS 096. Special Topics. 1-12 Credits.
See Schedule of Courses for specific titles.

MLRS 110. Phlebotomy. 1 Credit.
Basic techniques in blood collection in outpatient phlebotomy and advanced techniques in inpatient phlebotomy, including choice of anticoagulants, equipment, sterility, and protection from blood-borne pathogens. Prerequisites: MLS and MLS-PBC students only.

MLRS 140. Radiation Science. 3 Credits.
Introduction to ionizing radiation, emphasizing its interaction with matter, its effect on the human body, and methods of radiation protection.

MLRS 141. Advanced Radiation Science. 3 Credits.
Lecture and laboratory experiences to enhance the understanding and application of the principles of radioactive decay, radiation exposure, absorbed dose, shielding and detection of radiation. Prerequisite: MATH 009, MATH 010, MATH 019 or MATH 021.

MLRS 175. Medical Imaging. 3 Credits.
Introduction to the radiographic anatomy and the various imaging modalities presently used to include diagnostic imaging, computed tomography (CT), magnetic resonance imaging (MRI), and nuclear medicine. Prerequisites: MLRS 141, RADT 152, and ANPS 020.

MLRS 195. Intermediate Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.

MLRS 196. Intermediate Special Topics. 1-18 Credits.
See Schedule of Courses for specific titles.
MLRS 215. CT Procedures. 3 Credits.
This course provides in-depth study of the concepts, use and practice of CT Procedures related to Nuclear Medicine Technology and Radiation Therapy. Prerequisites: ANPS 019 and ANPS 020, MLRS 175.

MLRS 242. Immunology. 3 Credits.
Lecture dealing with cellular and humoral immunity, B cells and T cells, autoimmunity, immunodeficiency. Prerequisite: One semester of Biochemistry.

MLRS 244. Immunology Lab. 1 Credit.
Laboratory experience dealing with cellular and humoral immunity, B cells and T cells, autoimmunity, immunodeficiency. Laboratory covers immunological techniques and applications. Co-requisites: MLRS 242; one semester of Biochemistry.

MLRS 281. Applied Molecular Biology. 3 Credits.
Lecture course focused on application of molecular biology techniques to diagnostic testing and biotechnology. Prerequisite: CHEM 042 or CHEM 141.

MLRS 282. Applied Molecular Biology Lab. 1 Credit.
Laboratory course focused on application of molecular biology techniques to diagnostic testing and biotechnology. Prerequisites: CHEM 042 or CHEM 141. Co-requisite: MLRS 281.

MLRS 293. Undergraduate Research I. 1-6 Credits.
Individual research performed under the supervision of a faculty mentor. A written report and seminar is required. Prerequisite: Department permission.

MLRS 294. Undergraduate Research II. 1-6 Credits.
Individual research performed under the supervision of a faculty mentor. A written report and seminar is required. Prerequisite: MLRS 293, Department permission.

MLRS 295. Prin of Education & Management. 3 Credits.
Introduction to educational practices, management strategies, and professionalism. Third year standing, Medical Laboratory Science, Nuclear Medicine Technology, Radiation Therapy majors only.

MLRS 296. Leadership & Mgt in Hlth Care. 3 Credits.
This course will familiarize students with operational aspects of healthcare management, including but not limited to process improvement, budgeting, team building and information management. Prerequisites: NLS, NMT, RADT majors only; 3rd or 4th year cohort standing.

MLRS 297. Leadership & Mgt in Hlth Care. 3 Credits.
Familiarizes students with operational aspects of health care management, leadership and policy. Explores current techniques in process improvement, management methodologies, and healthcare policy with a special focus on disparities in health and healthcare. Prerequisites: Minimum Junior standing; College of Nursing and Health Sciences majors.

MLRS 299. Advanced Special Topics. 1-18 Credits.
Courses or seminars beyond scope of existing departmental offerings. Prerequisite: Department permission.