

BIOMEDICAL AND HEALTH SCIENCES

<https://www.uvm.edu/cnhs/bhsc>

Students in the Department of Biomedical and Health Sciences study and work at the intersection of human health, medicine, and technology. Programs offered lead to Bachelor of Science degrees in Biomedical and Clinical Sciences, Medical Radiation Sciences, and Public Health Sciences. A minor in Global Public Health, a minor in Public Health, Equity, and Advocacy, and a minor in Medical Diagnostics are also available.

The B.S. in Biomedical and Clinical Sciences offers three concentrations: Medical Laboratory Science, Public Health Laboratory Science, and Applied Biomedical Science.

The B.S. in Medical Radiation Science offers a clinical track in Radiation Therapy.

All programs offer an integrated curriculum, with courses in the humanities, basic, health and medical sciences, and direct hands-on experience through clinical practica, research or field work. Students have the opportunity to interact with faculty from the department and throughout the university, including the College of Medicine. Graduates of all three programs are prepared for immediate employment in the healthcare arena, or graduate study.

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.

MAJORS

BIOMEDICAL AND HEALTH SCIENCES MAJORS

Biomedical and Clinical Sciences B.S.

Medical Radiation Sciences B.S.

Public Health Sciences B.S.

MINORS

BIOMEDICAL AND HEALTH SCIENCES MINORS

Global Public Health

Medical Diagnostics

Public Health, Equity and Advocacy

GRADUATE

- Medical Laboratory Science M.S.

See the online Graduate Catalogue for more information.

Biomedical and Health Sciences Courses

BHSC 1340. 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. Catamount Core: N2.

BHSC 1980. Intro to Scientific Writing. 3 Credits.

Introduction to the principles and practices of research and writing in the biomedical and health sciences. Using scientific data and literature as a foundation, students will write in multiple genres through regular assignments applicable to future course work and health science professions. Pre/co-requisites: ENGL 1001 or equivalent; Radiation Medical Science, Medical Laboratory Sciences, Health Sciences major; or Instructor permission. Catamount Core: WIL2.

BHSC 1990. Special Topics. 1-18 Credits.

See Schedule of Courses for specific titles.

BHSC 1991. Internship. 1-3 Credits.

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

BHSC 1993. Independent Study. 1-18 Credits.

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

BHSC 2400. Radiation Science. 4 Credits.

Provides a broad based understanding of the fundamentals of radiation science including the ways in which radiation is produced and utilized, the principles of radioactive decay, radiation exposure, absorbed dose, shielding and detection of radiation. Prerequisite: MATH 1212 or MATH 1234. Co-requisites: RADT 2520 or Instructor permission for non-majors.

BHSC 2410. 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 1012, MATH 1034, MATH 1212 or MATH 1234.

BHSC 2750. Cross Sectional 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: ANPS 1200.

BHSC 2970. 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: College of Nursing and Health Sciences majors; minimum Junior standing.

BHSC 2990. Special Topics. 1-18 Credits.

See Schedule of Courses for specific titles.

BHSC 2991. Internship. 1-18 Credits.

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

BHSC 2993. Independent Study. 1-18 Credits.

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

BHSC 2994. Teaching Assistantship. 1-3 Credits.

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

BHSC 2995. Undergraduate Research. 1-18 Credits.

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion. Prerequisite: Department Permission.

BHSC 3192. Applied Biomedical Experience. 3-6 Credits.

Designed to provide a hands-on learning experience relevant to career interests and to accompany biomedical science coursework. Complete a pre-approved experience with an industry partner. Experience will permit forging new professional connections, building interpersonal communication skills, and further developing fundamental skills beneficial to future employment in the field of biomedical science. Prerequisites: Two semesters of general Chemistry and one semester of Biology; Biomedical and Clinical Sciences major; minimum Junior standing.

BHSC 3420. Immunology. 3 Credits.

Deals with cells, organs, development, interactions and the functioning (infectious process, immunodeficiency, hypersensitivity reactions, transplantation and tumor immunology) of the innate and the adaptive immune system. Prerequisites: One semester of cell biology or similar course is encouraged.

BHSC 3440. 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. Credit not awarded for both BHSC 3440 and BHSC 5440. Prerequisites: One semester of biochemistry, one semester of organic chemistry. Co-requisites: BHSC 3420 or MMG 3230.

BHSC 3810. Applied Molecular Biology. 3 Credits.

Introduces students to the nucleic acid and protein-based molecular diagnostics technology through class presentation, reading, and discussions. Focuses on diagnostic applications for understanding molecular mechanisms of disease. Credit not awarded for both BHSC 3810 and BHSC 5810. Prerequisite: CHEM 1580 or CHEM 2580.

BHSC 3820. Applied Molecular Biology Lab. 1 Credit.

Laboratory experiences include practical concepts of molecular applications. Introduces basic methods used in DNA and Protein technology including plasmid isolation, polymerase chain reaction, restriction enzyme use, and related assays. Credit not awarded for both BHSC 3820 and BHSC 5820. Prerequisite: CHEM 1580 or CHEM 2580. Co-requisite: BHSC 3810.

BHSC 3990. Special Topics. 1-18 Credits.

See Schedule of Courses for specific titles. Prerequisite: Department permission.

BHSC 3991. Internship. 1-18 Credits.

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

BHSC 3993. Independent Study. 1-18 Credits.

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

BHSC 3994. Teaching Assistantship. 1-3 Credits.

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

BHSC 3995. Undergraduate Research. 1-18 Credits.

Individual research performed under the supervision of a faculty mentor. A written report and seminar is required. Prerequisite: Department Permission.

BHSC 4990. Special Topics. 1-18 Credits.

See Schedule of Courses for specific titles.

BHSC 4991. Internship. 1-18 Credits.

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

BHSC 4993. Independent Study. 1-18 Credits.

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

Health Sciences Courses**HSCI 1036. Prev Sexual & Dating Violence. 3 Credits.**

In-depth examination of the dynamics, prevention of, and legal, medical, and other responses to interpersonal violence. Contemporary issues related to sexual violence, dating/intimate partner violence, and stalking will be discussed at length from both research and practical perspectives. Cross-listed with: GSWS 1405. Catamount Core: D2, S1.

HSCI 1100. Introduction to Public Health. 3 Credits.

An introductory investigation of public health that 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. Catamount Core: S1.

HSCI 1200. Antiracism and Health. 3 Credits.

Provides an appreciation for antiracist health-professionalism by examining the intersection of racism and healthcare and how this intersection shapes the way we treat and interact with one another across a wide spectrum of differing identities. Catamount Core: D1.

HSCI 1300. Epidemics: Dynam of InfDiseas. 3 Credits.

Through the analysis of historical and fictional infectious disease outbreaks, explores factors which encourage and discourage the emergence of infectious disease. Also examines examples of how disease has influenced human history, focusing on the impact of disease on the rise and fall of civilizations.

HSCI 1900. Foundations of Health Equity. 3 Credits.

Introduces the concept of health equity and provides an overview of health disparities in the US. Through the lens of social justice, examines historical and current issues at the root of inequitable health outcomes across the US and prompts consideration of possible solutions. Catamount Core: D2.

HSCI 1980. Writing for Health and Equity. 3 Credits.

Introduces the principles and practices of analytical writing as applied to Health issues facing populations. Using literature and current events as a foundation, students learn different approaches to writing about issues relevant to the field of public health, including systemic racism and health equity. Prerequisite: ENGL 1001 or equivalent. Catamount Core: D1, WIL2.

HSCI 1990. Special Topics. 1-18 Credits.

See Schedule of Courses for specific titles.

HSCI 1991. Internship. 1-3 Credits.

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

HSCI 1993. Independent Study. 1-18 Credits.

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HSCI 2100. Fndns of Global Health. 3 Credits.

Explores global health and global health challenges affecting people primarily in developing or resource-constrained countries. Prerequisite: Minimum Sophomore standing. Cross-listed with: ANTH 2191. Catamount Core: D2, GC1.

HSCI 2190. Global Public Health Practice. 3 Credits.

Designed for skill-building and to prepare students to work in the global public health field while negotiating cultural differences and responding to complex global public health situations that occur at the intersection of culture and disease. Prerequisite: Global Public Health minor.

HSCI 2200. Rsrch Methods in Public Health. 3 Credits.

Exploration of research methods as they pertain to public health and sustainability. With an emphasis on the multiple dimensions of sustainability and health disparities, students will evaluate and analyze primary, secondary and tertiary sources of information. Prerequisite: HSCI 1100. Catamount Core: SU.

HSCI 2300. Health Promotion. 3 Credits.

Introduces common theories from behavioral and social sciences that are currently being used in health education and health promotion. Focus on issues such as sexual health, smoking, and chronic diseases to support the skill building necessary to effectively motivate behavior change and improve health outcomes. Prerequisite: HSCI 1100. Catamount Core: S1.

HSCI 2400. Hlthcare & Pub Hlth Syst US. 3 Credits.

Summarizes and explains key aspects of the US healthcare and public health delivery systems, including the legal, ethical, economic, and regulatory dimensions of health care and public health policy, and the roles, influences and responsibilities of the different agencies and branches of government with regards to healthcare and public health. Prerequisite: HSCI 1100.

HSCI 2500. Health Communication. 3 Credits.

Collaborative investigation of the nature of health communication and an exploration of the ways in which health communication is intertwined with public health and health care. Prerequisites: HSCI 1100; minimum Sophomore standing.

HSCI 2600. Racism and Health Disparities. 3 Credits.

Introduces basic issues that underlie health disparities, with a focus on the connection between racism and health disparities in the U.S. Catamount Core: D1.

HSCI 2700. Social Justice and Sport. 3 Credits.

A discourse in American sports culture which has long been a haven for the most unjust attitudes and ideas including sexism, racism, and homophobia will be juxtaposed with the strong history of athletes using their high-profile stage for social change. Catamount Core: D2.

HSCI 2800. Cancer Epidemiology. 3 Credits.

Covers both the major theoretical concepts and practical issues involved in cancer surveillance and research pertaining to the distribution and determinants of cancer. Topics include: introduction to cancer; incidence and mortality rates of common cancers; cancer risk factors and etiology; cancer screening and surveillance; and cancer disparities and global cancer burden. Prerequisites: HSCI 1100 recommended; minimum Sophomore standing.

HSCI 2990. Special Topics. 1-18 Credits.

See Schedule of Courses for specific titles.

HSCI 2991. Internship. 1-18 Credits.

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

HSCI 2993. Independent Study. 1-18 Credits.

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

HSCI 2994. Teaching Assistantship. 1-3 Credits.

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

HSCI 2995. Undergraduate Research. 1-18 Credits.

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

HSCI 3100. Epi, Pub Hlth & Emerg Disease. 3 Credits.

Explores the role of epidemiology in public health, focusing on current and emerging diseases and the principles, concepts, and methods of population-based epidemiology - the study of patterns and determinants of disease in populations. Topics will include measuring disease frequency, rates and proportions, application of epidemiologic study design and disease investigation. Prerequisite: HSCI 2200.

HSCI 3200. Pressing Issues in Global PH. 3 Credits.

Explores contemporary issues in global public health through an interdisciplinary perspective. Examines the complex social, political, and environmental factors that impact global health through modules in Climate Change, Humanitarian Crises, Infectious Disease, Chronic Disease, and Global Mental Health. Pre/Co-requisite: HSCI 2100.

HSCI 3300. Hlth Promotion Prog Plan/Eval. 3 Credits.

In stages, create a project proposal and evaluation plan for a health-related program. A complete proposal and evaluation plan will be required of each student as the final course outcome. Prerequisites: HSCI 2300; Public Health Sciences major; minimum Junior standing.

HSCI 3400. Writing for Health Profess.. 3 Credits.

Review of principles of good writing with an emphasis on non-technical writing commonly used in health care organizations, and organizations that support health and health care in the U.S. and globally. Adaptation of materials for lay or low literacy audiences. Prerequisites: HSCI 2500; Health Sciences major; minimum Junior standing.

HSCI 3450. App Leadership in Hlth Equity. 3 Credits.

This culminating course will offer an opportunity for students to engage across disciplines to work towards creating more just communities and societies to ensure that all people can reach their highest potential for health. Prerequisites: Health Equity minor or Instructor permission. Catamount Core: GC2, S1.

HSCI 3500. Capstone. 3 Credits.

The health-related capstone is a service-learning based course that provides an opportunity to integrate academic learning and skills while gaining exposure to health issues and populations through a service placement with a community agency. Prerequisites: HSCI 3300, HSCI 2200, HSCI 2400, HSCI 3100, HSCI 2500, HSCI 2300, HSCI 2100; Public Health Sciences major; minimum Senior standing.

HSCI 3990. Special Topics. 1-18 Credits.

See Schedule of Course for specific titles.

HSCI 3991. Internship. 1-18 Credits.

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

HSCI 3993. Independent Study. 1-18 Credits.

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

HSCI 3994. Teaching Assistantship. 1-3 Credits.

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

HSCI 3995. Undergraduate Research. 1-18 Credits.

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

Medical Laboratory Science Courses**MLS 1990. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

MLS 1991. Internship. 1-3 Credits.

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

MLS 1993. Independent Study. 1-18 Credits.

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

MLS 2010. Medical Diagnostic Techniques. 0 or 3 Credits.

Introduces the field of Medical Laboratory Science. Using lecture and laboratory practice, students will demonstrate professionalism and interpersonal skills while achieving competence with common laboratory procedures. Students will demonstrate knowledge in using aseptic techniques to handle and analyze specimens, using appropriate laboratory equipment. Prerequisites: CHEM 1100; or CHEM 1400, CHEM 1450.

MLS 2990. Special Topics. 1-18 Credits.

See Schedule of Courses for specific titles.

MLS 2991. Internship. 1-18 Credits.

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

MLS 2993. Independent Study. 1-18 Credits.

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

MLS 2994. Teaching Assistantship. 1-3 Credits.

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

MLS 2995. Undergraduate Research. 1-18 Credits.

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

MLS 3000. Applied Medical Diagnostics. 3 Credits.

Introduces the methodologies, techniques, and clinical applications associated with point of care testing in a community health setting. Students explore community health issues and engage in service-learning hours with a community partner outside of scheduled class time. Service learning combines community service with academic instruction, focusing on critical, reflective thinking. Prerequisites: MLS 2010 or a Medical Laboratory Science major; minimum Junior standing.

MLS 3100. Clinical Chemistry I. 3 or 4 Credits.

Lectures and laboratory experiences introduce basic principles in clinical quantitative analysis and laboratory instrumentation; test results are correlated with clinical case studies. Credit not awarded for both MLS 3100 and MLS 5100. Prerequisites: ANPS 1190 and ANPS 1200; CHEM 1400 and CHEM 1450; CHEM 1580 or CHEM 2580.

MLS 3110. Clinical Chemistry II. 3 Credits.

Advanced instruction in body chemistry and pathophysiology of disease with emphasis on diagnostic lab techniques in chemistry. Prerequisites: MLS 3100, PATH 2010.

MLS 3192. Clinical Practicum: Chemistry. 3 Credits.

Experiences in an approved clinical laboratory education site in the area of clinical chemistry. Prerequisite: Medical Laboratory Science Seniors only.

MLS 3200. Hematology. 3 Credits.

Advanced theory and analysis of blood cell physiology and related pathology. Concepts of hemostasis and clinical assessment methods. Credit not awarded for both MLS 3200 and MLS 5200. Prerequisites: One semester of organic chemistry, one semester of biochemistry.

MLS 3220. Hematology Lab. 1 Credit.

The laboratory sessions will cover four broad areas of hematology practice: 1) laboratory tests associated with hemostasis, 2) laboratory tests and morphology seen in diseases affecting WBC cells, 3) peripheral blood and bone marrow cell morphology, and 4) laboratory tests and the associated morphology diagnostic of various RBC disorders. Prerequisite: One semester of organic chemistry, one semester of biochemistry. Co-requisite: MLS 3200.

MLS 3292. Clinical Practicum:Hematology. 3 Credits.

Experiences in approved clinical laboratory education site in the area of clinical hematology. Prerequisite: Medical Laboratory Science Seniors only.

MLS 3300. Clinical Microbiology II. 3 Credits.

Comprehensive study of non-bacterial pathogenic microorganisms and their disease states in humans. Includes medical mycology, parasitology and virology. Credit not awarded for both MLS 3300 and MLS 5300. Prerequisites: MMG 1650 or MMG 2010.

MLS 3392. Clin Practicum:Microbiology. 3 Credits.

Experiences in an approved clinical laboratory education site in the area of clinical microbiology. Prerequisite: Medical Laboratory Science Seniors only.

MLS 3400. Immunohematology. 4 Credits.

Advanced theory and experience related to human blood groups and transfusion practice. Credit not awarded for both MLS 3400 and MLS 5400. Prerequisite: BHSC 3420 or MMG 3230.

MLS 3492. Clin Practicum:Immunohematolog. 3 Credits.

Experiences in an approved clinical laboratory education site in the area of clinical immunohematology. Prerequisite: Medical Laboratory Science Seniors only.

MLS 3892. Public Health Lab Practicum. 12 Credits.

Public health laboratory experiences under the direction of public health scientists, performing methods for screening and diagnostic purposes as well as good public health practice. MLS Seniors.

MLS 3900. Topics in Medical Lab Science. 2 Credits.

Seminar on topics in the practice and profession of Medical Laboratory Science. Online course. Topics vary by offering; periodic offering at intervals that may exceed four years. Co-requisites: MLS 3192, MLS 3292, MLS 3392, MLS 3492, Medical Laboratory major.

MLS 3910. Fndtn of Interprofessionalism. 1 Credit.

Ensures that Medical Laboratory Science students are adequately prepared for beginning their clinical practica. During this online course, students will develop interprofessional communication skills, explore team dynamics, reflect on professional behaviors and their values, discuss ethics within the field of laboratory sciences, and review the goals, expectations, and responsibilities of a student learner in a professional laboratory environment. Prerequisite: 4th year Medical Laboratory Science student.

MLS 3990. Special Topics. 1-18 Credits.

See Schedule of Courses for specific titles.

MLS 3991. Internship. 1-18 Credits.

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

MLS 3993. Independent Study. 1-18 Credits.

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

MLS 3994. Teaching Assistantship. 1-3 Credits.

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

MLS 3995. Undergraduate Research. 1-18 Credits.

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

MLS 4990. Special Topics. 1-18 Credits.

See Schedule of Courses for specific titles.

MLS 4993. Independent Study. 1-18 Credits.

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

Radiation Therapy Courses**RADT 1990. Special Topics. 1-18 Credits.**

See Schedule of Course for specific title. Offered at department discretion.

RADT 1991. Internship. 1-3 Credits.

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

RADT 1993. Independent Study. 1-18 Credits.

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

RADT 2520. Prin of Radiation Therapy. 3 Credits.

Introduction to the practice and theory of radiation therapy. Co-requisite: BHSC 2400 or Instructor permission for non-majors.

RADT 2760. Clinical Radiation Oncology. 3 Credits.

The various types of neoplasms, methods of diagnosis of treatment, and elementary pathology are presented. Prerequisites: ANPS 1190, ANPS 1200, PATH 2010, Radiation Therapy majors. Co-requisite: RADT 2870 or Instructor permission.

RADT 2850. Intro to Clinical Practice. 3 Credits.

Introduction to the clinical environment through activities which include patient care issues, treatment unit operations and manipulations and direct patient case. Includes a clinical practicum. Pre-requisite: RADT 2520.

RADT 2870. Clinical Practicum II. 2.5 Credits.

Students participate and observe in the University of Vermont Medical Center Radiation Therapy Department. Prerequisite: RADT 2850.

RADT 2890. Clinical Practicum. 2 Credits.

Radiation Therapy students actively participate in the delivery of radiation therapy at the department of Radiation Oncology at the University of Vermont Medical Center. Students will also rotate through other areas in the hospital pertinent to their profession. Prerequisite: RADT 2850.

RADT 2990. Special Topics. 1-18 Credits.

See Schedule of Course for specific title. Offered at department discretion.

RADT 2991. Internship. 1-18 Credits.

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

RADT 2993. Independent Study. 1-18 Credits.

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

RADT 2994. Teaching Assistantship. 1-3 Credits.

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

RADT 2995. Undergraduate Research. 1-18 Credits.

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

RADT 3150. CT Procedures. 3 Credits.

Provides in-depth study of the concepts, use and practice of CT Procedures related to Nuclear Medicine Technology and Radiation Therapy. Prerequisites: ANPS 1190, ANPS 1200, BHSC 2750.

RADT 3440. Essentials of Patient Care. 3 Credits.

Presents all aspects of care associated with the treatment of cancer when patients receive Radiation Therapy. Prerequisites: RADT 2520, RADT 2850.

RADT 3700. Dosimetry Concepts. 3 Credits.

Introduces dosimetry, treatment planning and quality assurance concepts to prepare for clinical dosimetry rotations. Prerequisites: BHSC 2400; PHYS 1250 or PHYS 1400 and PHYS 1450.

RADT 3710. Dosimetry. 3 Credits.

Treatment plan verification using three-dimensional computer models, simulation data, and knowledge of treatment unit capabilities. Prerequisites: RADT 3700, Radiation Therapy major.

RADT 3770. Techniques Radiation Therapy. 4 Credits.

Advanced theory and clinical application of radiotherapeutic techniques. Co-requisites: RADT 3850, RADT 3780, Radiation Therapy major.

RADT 3780. Senior Seminar in Rad Therapy. 2 Credits.

Evaluate current trends in advanced treatment techniques with the premise of clinical research and modern technology used in oncology. Helps prepare students for the American Registry of Radiologic Technologists national certification exam. Prerequisites: RADT 3440, RADT 3710. Co-requisites: RADT 3850, RADT 3770.

RADT 3850. Clinical Practicum III. 2.5 Credits.

A continuation of RADT 2870 emphasizing increasing clinical capabilities. Prerequisite: RADT 2870. Co-requisite: RADT 3770.

RADT 3870. Clinical Practicum IV. 11 Credits.

RADT students are assigned to approved clinical education sites to observe and increase their participation in the clinical environment. Evaluations based on defined clinical objectives and competencies to be completed by the clinical and University faculty. Spring. Prerequisites: Successful completion of all previous required major courses and concurrent enrollment in RADT 3890.

RADT 3880. Final Clinical Pract Overview. 1-4 Credits.

To orient the student to a new radiation oncology department; understand basic patient flow and essential equipment. The student is also responsible for completing all necessary orientation requirements at the organization, department level, or both. This includes understanding relevant policies and procedures and SOP's. Prerequisites: RADT 3710, RADT 2760, RADT 2870, RADT 3440; Senior standing.

RADT 3890. Quality Assurance & Treatment Plan. 2 Credits.

The integration of clinical oncology, radiobiology, dosimetry, and treatment planning, and how they affect patient outcomes. Prerequisites: RADT 3850, RADT 3770, RADT 3780; Senior standing. Co-requisite: RADT 3870.

RADT 3990. Special Topics. 1-18 Credits.

See Schedule of Course for specific title. Offered at department discretion.

RADT 3991. Internship. 1-18 Credits.

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

RADT 3993. Independent Study. 1-18 Credits.

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

RADT 3994. Teaching Assistantship. 1-3 Credits.

Undergraduate student service as a teaching assistant, usually in an introductory level course in the discipline, for which credit is awarded. Offered at department discretion.

RADT 3995. Undergraduate Research. 1-18 Credits.

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.