**RAE Russian and Eastern Studies**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Prerequisites</th>
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<tr>
<td>RAE 101 ELEMENARY RUSSIAN.</td>
<td>The students are introduced to the language through grammatical explanations, recitation practice, and oral as well as written exercises. The emphasis is on the spoken language of everyday use, reading of graded Russian texts, vocabulary building and accurate pronunciation. Extensive work with tape recordings. Lecture, three hours; supervised recitation, one hour per week.</td>
<td>4</td>
<td>RAE 101 or equivalent.</td>
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<tr>
<td>RAE 102 ELEMENTARY RUSSIAN.</td>
<td>A continuation of RAE 101. Lecture, three hours; supervised recitation, one hour per week. Prereq: RAE 101 or equivalent.</td>
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<tr>
<td>RAE 111 RUSSIAN ORAL PRACTICE.</td>
<td>Supplementary oral work for students of Elementary Russian can be taken in conjuction with RAE 101 and/or RAE 102. May be repeated to a maximum of two credits.</td>
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<tr>
<td>RAE 115 BEGINNING KAZAKH I.</td>
<td>Beginning Kazakh is designed in 14 weeks to introduce to the students the essentials of the language and start building their proficiency in the four main areas: auding, speaking, reading and writing. The main focus of the course is communication in Kazakh in various fields of everyday life. The major goal of the course is to help the students speak grammatically correct Kazakh while producing as much language as possible.</td>
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<td>RAE 115 or equivalent.</td>
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<tr>
<td>RAE 116 BEGINNING KAZAKH II.</td>
<td>This course is designed in 14 weeks to continue developing the students’ skills in auding, speaking, reading and writing in Kazakh. Expansion of knowledge of Kazakh language and vocabulary. Prereq: RAE 115 or equivalent.</td>
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<tr>
<td>RAE 201 INTERMEDIATE RUSSIAN.</td>
<td>Systematic study of grammar. Introduction through simplified texts to the life and culture of Tsarist and Soviet Russia. Dictation, composition, conversation, and extensive oral practice. Lecture, three hours; recitation, one hour per week. Prereq: RAE 102 or the equivalent.</td>
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<td>(Required.)</td>
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<tr>
<td>RAE 202 INTERMEDIATE RUSSIAN.</td>
<td>A continuation of RAE 201. Lecture, three hours; recitation, one hour per week. Prereq: RAE 201 or equivalent.</td>
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<td>(Required.)</td>
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<tr>
<td>RAE 205 RUSSIAN PHONOLOGY AND PRONUNCIATION.</td>
<td>A practical review of the Russian sound system with emphasis on practicing intonation in conversational situations. Lecture, one hour; laboratory, one hour per week. May be repeated to a maximum of two credits. Prereq: RAE 102.</td>
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<tr>
<td>RAE 261 SURVEY OF RUSSIAN LITERATURE.</td>
<td>A survey of Russian literature from its beginning to the present using selected major works of prose, poetry and drama. No knowledge of Russian is required.</td>
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<tr>
<td>RAE 270 INTRODUCTION TO RUSSIAN CULTURE.</td>
<td>A general introduction to Russian culture from its origins through the early 20th century designed to acquaint students with the roots of Russian religion, art, architecture, music, folklore, and everyday life.</td>
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<tr>
<td>RAE 280 RUSSIAN AND SOVIET CULTURE OF THE 20TH CENTURY.</td>
<td>A broad survey of Russian civilization as it has developed in the arts, law, and in its socio-religious values. Taught in English.</td>
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<tr>
<td>RAE 303 RUSSIAN PRONUNCIATION AND CONVERSATION.</td>
<td>Practical phonetics of Russian and intensive practice in conversational Russian. Prereq: RAE 101, 102, 201, 202.</td>
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<tr>
<td>RAE 304 RUSSIAN PRONUNCIATION AND CONVERSATION.</td>
<td>Practical phonetics of Russian and intensive practice in conversational Russian. Continuation of RAE 303. Prereq: RAE 101, 102, 201, 202.</td>
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<tr>
<td>RAE 305 ADVANCED RUSSIAN GRAMMAR.</td>
<td>Detailed study of advanced points of Russian grammar, such as verbal aspect, verbs of motion, participles, conditional constructions, time expressions. Prereq: RAE 202 or equivalent.</td>
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<tr>
<td>RAE 306 ADVANCED RUSSIAN GRAMMAR.</td>
<td>Continuation of RAE 305. Detailed study of advanced points of Russian grammar such as reflexives, passives, complex/compound sentences, word formation, word order, syntax. Prereq: RAE 305 or consent of instructor.</td>
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<tr>
<td>RAE 310 RUSSIAN LISTENING AND ORAL PROFICIENCY.</td>
<td>Intensive practice with listening comprehension based on Soviet audio materials, conversation, and practice in word formation. Lecture, one hour; laboratory, one hour per week. Prereq: RAE 202.</td>
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<tr>
<td>RAE 340 KAZAKH CULTURAL HISTORY I.</td>
<td>A chronological description of Kazakh cultural history from its origins through the nineteenth century.</td>
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<tr>
<td>RAE 342 KAZAKH CULTURAL HISTORY II.</td>
<td>A description of Kazakh cultural history immediately before, during, and after Soviet Power.</td>
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<tr>
<td>RAE 370 RUSSIAN FOLKLORE (in English).</td>
<td>Central issues of Russian folk culture, particularly related to ritual, material culture, and oral lore; patterns and functions of folk architecture, clothing, and crafts in 19th C. peasant life.</td>
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<tr>
<td>RAE 380 SURVEY OF 19th CENTURY RUSSIAN LITERATURE (in English).</td>
<td>A survey of Russian literature of the 19th Century. Emphasis is on the development of romanticism, the rise of realism, and end-of-century decadence. All readings, lectures, and discussions are in English. Students taking the course for Russian major credit are expected to do outside work in Russian.</td>
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<tr>
<td>RAE 390 MODERN RUSSIAN LITERATURE (in English).</td>
<td>Russian literature of the 20th Century, including modernist trends, Socialist Realism, non-conformist trends, Russian literature abroad. Students taking the course for Russian major credit will be assigned outside work in Russian.</td>
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<td>RAE 395 INDEPENDENT WORK IN RUSSIAN.</td>
<td>Students who have the proper qualifications may undertake a special problem in reading and research. May be repeated to a maximum of six credits. (Recommended.)</td>
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<tr>
<td>RAE 400G SEMINAR ON SPECIAL TOPICS IN RUSSIAN.</td>
<td>Detailed investigation of a given topic, author or theme. Research to be conducted at least in part using Russian materials. Subject will be announced prior to preregistration. May be repeated to a maximum of six credits.</td>
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<tr>
<td>RAE 410 STRUCTURE AND STYLISTICS OF RUSSIAN.</td>
<td>A concise structural study of Russian grammar combined with readings illustrating the relationship between grammar and style in Russian prose and verse. Attention is also given to techniques and elements of formal textual analysis. Prereq: Third year knowledge of Russian.</td>
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<tr>
<td>RAE 411 STRUCTURE AND STYLISTICS OF RUSSIAN.</td>
<td>A continuation of RAE 410. Prereq: RAE 410 or equivalent. (Recommended.)</td>
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<tr>
<td>RAE 420 RUSSIAN TRANSLATION.</td>
<td>Translation of unadapted texts from Russian to English, theory of translation, practice translation of Russian texts of various kinds, both technical and literary, focus on specific stylistic requirements, translation of short texts from English to Russian, introduction to oral interpretation. Prereq: RAE 303-304 or equivalent.</td>
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<tr>
<td>RAE 430G BUSINESS RUSSIAN.</td>
<td>Development of written and oral skills in Russian needed to conduct business activities in Russian-speaking areas of the former Soviet Union using various materials from banking, advertising, law, economics and industry. Prereq: Third year knowledge of Russian.</td>
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<tr>
<td>RAE 460G TOLSTOY (in English).</td>
<td>The study of Tolstoy, his art and life. All readings, lectures, and discussions are in English. Students taking the course for Russian major credit are expected to do outside work in Russian.</td>
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<tr>
<td>RAE 462G ADVANCED READING IN THE SCIENCES AND TECHNOLOGY (in Russian).</td>
<td>Technical reading in a broad variety of Russian literature in the natural and social sciences to improve language skills enabling the student to read, write on and discuss technical subjects. Prereq: Third year knowledge of Russian.</td>
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RAE 480 RUSSIAN POETRY (in Russian). (3) Reading of selected major Russian poems as a basis for perfection of language skills, involving class discussions, compositions and translation practice. Prereq: A third-year knowledge of Russian or consent of instructor.

RAE 495G ADVANCED INDEPENDENT WORK IN RUSSIAN AND EASTERN STUDIES. (1-3) Independent research in Russian and Eastern Studies on an advanced level for undergraduate and graduate students. Students will be required to establish a written contract with the relevant faculty member describing the tasks to be completed in the course. May be repeated to a maximum of six credits, or a total of six credits of RAE 395 and 495G.

HEBREW
*RAE 130 ELEMENTARY HEBREW. (4) Coverage of Hebrew grammar designed to prepare students to use Hebrew for their particular needs and programs.

*RAE 131 ELEMENTARY HEBREW. (4) Continuation of RAE 130. Prereq: RAE 130 or consent of instructor.

RAE 230 INTERMEDIATE HEBREW. (3) Hebrew grammar and introduction to the reading of specimens of Hebrew prose. Prereq: RAE 131 or consent of instructor.

RAE 231 INTERMEDIATE HEBREW. (3) Readings in selected Hebrew authors. Prereq: RAE 230 or consent of instructor.

RAE 324 JEWISH THOUGHT AND CULTURE I: FROM ANCIENT ISRAEL TO THE MIDDLE AGES. (3) A survey of Jewish intellectual and material civilization from its beginnings in ancient Israel to its efflorescence in the medieval period.

RAE 325 JEWISH THOUGHT AND CULTURE II: FROM THE EXPULSION FROM SPAIN TO THE PRESENT. (3) A survey of Jewish intellectual and material civilization from the expulsion from Spain in 1492 to the destruction of European Jewry in the Holocaust and the re-establishment of Israel.

ARABIC
*RAE 140 ELEMENTARY MODERN STANDARD ARABIC. (4) An introduction to the standard written language of the Arab World. Initial emphasis upon the phonology and script, followed by gradual coverage of the grammar, with exercises in reading, writing, pronunciation, and vocabulary building.

*RAE 141 ELEMENTARY MODERN STANDARD ARABIC. (4) Continuation of RAE 140. Prereq: RAE 140.

RAE 240 INTERMEDIATE MODERN STANDARD ARABIC. (3) A continuation of RAE 141, stressing comprehension of written and oral material, the ability to read Arabic aloud and to compose written material, and the ability to speak. Prereq: RAE 141.

RAE 241 INTERMEDIATE MODERN STANDARD ARABIC. (3) A continuation of RAE 240, stressing comprehension of written and oral material, the ability to read Arabic aloud and to compose written material, and the ability to speak. Prereq: RAE 240.

OTHER DEPARTMENTAL OFFERINGS
RAE 260 CLASSICS OF NEAR EASTERN LITERATURE IN TRANSLATION. (3) A survey of Near Eastern literature, mainly Islamic. Some selections are chosen on the basis of their universal interest, while others demonstrate literary values and ideals with which Western readers are not ordinarily familiar. Occasional recordings and slide-illustrated lectures are included.

*RAE 328 ISLAMIC CIVILIZATION I. (3) The rise of Islam and its classical development.

*RAE 330 ISLAMIC CIVILIZATION II. (3) The Islamic world’s response to westernization and the resultant reassertion of its cultural role in the modern world.

RAE 401 SEMINAR IN RUSSIAN AND EAST EUROPEAN STUDIES I (Subtitle required). (3) Interdisciplinary seminar on a topic in Russian and East European Studies in the period before 1800. Prereq: Junior standing.

RAE 402 SEMINAR IN RUSSIAN AND EAST EUROPEAN STUDIES II (Subtitle required). (3) Interdisciplinary seminar on a topic in Russian and East European Studies in the 19th Century. Prereq: Junior standing.

RAE 403 SEMINAR IN RUSSIAN AND EAST EUROPEAN STUDIES III (Subtitle required). (3) Interdisciplinary seminar on a topic in Russian and East European Studies in the late 19th Century through the Revolution. Prereq: Junior standing.

RAE 404 SEMINAR IN RUSSIAN AND EAST EUROPEAN STUDIES IV (Subtitle required). (3) Interdisciplinary seminar on a topic in Russian and East European Studies in the Soviet period. Prereq: Junior standing.

RAS Radiation Sciences

RAS 395 INDEPENDENT WORK IN MEDICAL PHYSICS AND RADIOLOGICAL HEALTH. (1-3) Students may select an approved topic for study under the direction of a faculty member in Radiation Sciences. May be repeated to a maximum of six credits. Prereq: Upper division standing in Radiological Health or a related field, and consent of faculty adviser.

RAS 540 FUNDAMENTALS OF RADIATION BIOLOGY. (2) Fundamental aspects of radiation biology. Radiation effects on macromolecules, cells, tissues, organs, and organisms. Prereq: One year of biological sciences, one year of chemistry, one year of physics, and MA 113, or equivalent. (Same as BIO 540.)

RAS 541 RADIOISOTOPE METHODOLOGY. (2) Radioisotope techniques and their application in the biological and medical sciences. Radiation safety, calibration and use of radiation detectors, counting statistics, uptake and assay methods, and applications. Laboratory, five hours per week. Prereq: One year biology, CHE 115, PHY 213, and MA 113, or equivalent. (Same as BIO 541.)

RAS 545 RADIATION HAZARDS AND PROTECTION. (3) An analysis of common radiation hazards encountered in medicine, research, industry, and the environment. Regulations and procedures for the safe use of ionizing and nonionizing radiations. Lecture, two hours; laboratory, two and one-half hours. Prereq: PHY/RM 472G or consent of instructor. (Same as PHY/RM 545.)

RAS 546 GENERAL MEDICAL RADIOLOGICAL PHYSICS. (3) The uses and dosimetric aspects of radiation in medicine will be analyzed, including many basic applications in the fields of diagnostic radiology physics, therapy physics, and nuclear medical physics. Prereq or concour: RM/PHY 472G or consent of instructor. (Same as PHY/RM 546.)

RAS 575 APPLIED HEALTH PHYSICS LABORATORY. (2) Advanced laboratory analysis of common applied health physics problems. Laboratory, four hours per week. Prereq: PHY/RM/RAS 545 and upper division or graduate standing in a physical science, or consent of instructor.


RAS 610 ETHICS IN CLINICAL SCIENCES RESEARCH. (1) Students will examine ethical issues in biomedical research using a case-study approach. Representative issues addressed may include data selection and retention, plagiarism, scientific review of grants and manuscripts, scientific misconduct, and informed consent. Prereq: Graduate student status. (Same as CD/CLS/CNU/PT 610.)

RAS 647 PHYSICS OF DIAGNOSTIC IMAGING I. (3) Specialized and advanced topics in diagnostic imaging, including modulation transfer function analysis, image processing algorithms, acceptance testing, CT, NMR, ultrasound, etc. Prereq: PHY/RM/RAS 546 or consent of instructor. (Same as RM 647.)
RAS 648 PHYSICS OF DIAGNOSTIC IMAGING II. (3)
A continuation of RAS/RM 647. Specialized and advanced topics in nuclear medicine imaging physics, including positron emission tomographic procedures, emerging new modalities, and quality control. Prereq: RM/RAS 647 or consent of instructor. (Same as RM 648.)

RAS 649 PHYSICS OF RADIATION THERAPY. (3)
Specialized external beam and brachytherapy treatment planning; advanced Bragg-Gray cavity applications, including Ngas and TG-21; calibration, acceptance testing, and quality control of therapy physics equipment. Prereq: RAS/RM 546 and RAS/RM 601, or consent of instructor. (Same as RM 649.)

RAS 651 ADVANCED LABORATORY IN DIAGNOSTIC IMAGING PHYSICS. (1-3)
Specialized experiments involving the use, calibration, and quality control of x-ray and other diagnostic imaging equipment, and the appropriate use of radiation detectors in diagnostic radiology measurements. Laboratory, approximately 30 hours per credit. May be repeated to a maximum of three credits. Prereq: RAS/RM 472G, RAS/RM 546; and concurrent: RAS/RM 647, or equivalent, plus graduate standing in the radiation science program.

RAS 695 RESEARCH IN THE HEALTH-RELATED RADIATION SCIENCES. (1-4)
Independent directed research on theoretical and practical problems in the health-related radiation sciences. May be repeated to a maximum of eight credits. Prereq: Graduate standing in one of the radiation-related sciences, plus consent of instructor. (Same as RM 695.)

RAS 710 RADIATION SCIENCE SEMINAR
(Subtitle required). (1)
Topics of current interest relating to radiation and its applications in the areas of radiological medical physics and health physics. May be repeated to a maximum of four credit hours with consent of instructor. Prereq: Graduate standing in one of the radiation-related sciences, plus consent of instructor. (Same as RM 710.)

RAS 715 ADVANCED PROBLEMS IN HEALTH-RELATED RADIATION SCIENCES. (1-4)
Directed study and analysis of problems and their solutions, in areas of major concern to the health-related radiation sciences. May be repeated for a total of up to four semester hours. Prereq: Advanced standing with graduate radiation sciences, plus consent of instructor.

RAS 849 RADIATION SCIENCES PRACTICUM. (1-6)
Applied practicum experiences in the radiation sciences. Laboratory, 40 hours per week equals one credit hour. Prereq: Advanced graduate standing in the radiation sciences.

RBM Physical Medicine and Rehabilitation

RBM 815 FIRST-YEAR ELECTIVE, REHABILITATION MEDICINE. (1-3)
The student will be assigned to a faculty member and will attend inpatient rounds and staff conferences on the Spinal Cord Injury, Brain Injury or Stroke units at Cardinal Hill Hospital. Student will attend OT and PT Clinics with assigned patients; a brief discussion paper will be required on an assigned topic.

RBM 825 SECOND-YEAR ELECTIVE, REHABILITATION MEDICINE. (1-4)
The student will be assigned to a faculty member and will attend inpatient rounds and staff conferences on the Spinal Cord Injury, Brain Injury or Stroke units at Cardinal Hill Hospital. Student will attend OT and PT Clinics with assigned patients; a brief discussion paper will be required on an assigned topic.

RBM 835 THIRD-YEAR ELECTIVE, REHABILITATION MEDICINE. (1-6)
The student with specific interests in brain injury, stroke or spinal cord injury will be assigned to follow appropriate patients selected from the Rehabilitation Medicine service at Cardinal Hill Hospital. Student will interview, examine and study those cases in depth to gain an expanded understanding of the selected area. Brief presentation at the end of the rotation.

RBM 850 ACTING INTERNSHIP IN REHABILITATION MEDICINE. (1-6)
Acting internship in Rehabilitation Medicine. May be repeated to a maximum of eight credits. Prereq: Medicine and/or surgery clerkship.

RC Rehabilitation Counseling

RC 510 ORIENTATION TO REHABILITATION RESOURCES. (3)
A study of the breadth of agencies involved in the rehabilitation process: medical, educational, vocational, institutional, and community services for handicapped adults. Relationships among agencies, staffing patterns, funding resources, and gaps and overlaps in services. Two hours lecture per week; two hours laboratory per week. Prereq: Twelve hours of social or behavioral sciences, or graduate standing, or consent of instructor.

RC 515 MEDICAL AND PSYCHOSOCIAL ASPECTS OF DISABILITIES I. (3)
This course is designed to prepare rehabilitation counselors and social workers to become interpreters of medical information concerning major disabilities and to provide an understanding of the psychosocial factors encountered by the disabled. Focus will be on how these factors affect adjustment to a disability, and on professional practice with the disabled. Topics include concepts of medical and psychosocial aspects of disability which relate to conditions that impair bodily systems and/or structures due to illness or accident that result in permanent and/or chronic functional limitations. Prereq: College level courses in biology and psychology or consent of instructor. (Same as SW 515.)

RC 516 MEDICAL AND PSYCHOSOCIAL ASPECTS OF DISABILITIES II. (3)
This course is designed to prepare rehabilitation counselors and social workers to become interpreters of medical information concerning major disabilities and to provide an understanding of the psychosocial factors encountered by the disabled. Focus will be on how these factors affect adjustment to a disability, and on professional practice with the disabled. Topics include concepts of medical and psychosocial aspects of disability which relate to conditions that impair bodily systems and/or structures due to illness or accident that result in permanent and/or chronic functional limitations. Prereq: College level courses in biology and psychology or consent of instructor. (Same as SW 516.)

RC 520 PRINCIPLES OF REHABILITATION COUNSELING. (3)
A comprehensive introduction to rehabilitation as a human service system in modern America. Philosophical, historical, legislative, and organizational structures; rehabilitation programs and related specialties; referral and delivery systems; the rehabilitation process; and professional issues and ethics. Prereq: Twelve hours of social or behavioral science, or graduate standing, or consent of instructor.

RC 550 SPECIAL TOPICS IN REHABILITATION. (1-3)
Study of a selected topic within the field of rehabilitation. Topic to be chosen annually in accordance with student needs and interests. May be repeated to a maximum of six credits.

RC 610 CASE MANAGEMENT IN REHABILITATION COUNSELING. (3)
Development of rehabilitation counseling skills and techniques. Understanding of behavior, and implementation of appropriate intervention strategies for facilitating persons with disabilities through the rehabilitation process. Case management techniques, ethics, consultation strategies, and specialized counseling skills development. Prereq: EDP 652 and RC 520 or consent of instructor.

RC 620 VOCATIONAL EVALUATION AND WORK ADJUSTMENT FOR THE SEVERELY DISABLED. (3)
Methods and techniques used in determining and enhancing the vocational potential of persons with disabilities. Commercial evaluation systems, work adjustment techniques, personal adjustment training, the role of evaluation in rehabilitation. Laboratory experience will include administration and interpretation of vocational tests. Lecture: two hours; laboratory: two hours per week. Prereq: A vocational theories course and RC 520 or consent of instructor.

RC 630 PLACEMENT SERVICES AND TECHNIQUES IN REHABILITATION COUNSELING. (3)
Development of skills for placement of persons with disabilities into a variety of settings—competitive employment, supported employment, independent living, philosophy of placement, preplacement analysis, client readiness techniques, job development, job engineering, employer attitudes, business rehabilitation, and social security disability. Occupation information and its use in the placement process. Labor market analysis and procedures for analyzing client residual and transferrable work skills. Procedures for employability skills development. Prereq: A vocational theories course, RC 520 and 620 or consent of instructor.
RC 640 REHABILITATION IN BUSINESS AND INDUSTRY. (3)
This course is designed to provide students with a comprehensive knowledge of rehabilitation in business environments. Skills to develop a professional working relationship between the rehabilitation professional, employers, the insurance industry, and other professionals will be taught. A thorough overview of worker compensation, related legislation, and other insurance will be presented. The roles and functions of the rehabilitation professional in business rehabilitation counseling will be discussed. Prereq: Twelve hours of study in rehabilitation counseling or consent of instructor.

RC 710 PRACTICUM IN REHABILITATION COUNSELING. (3)
Learning experiences under faculty supervision in a community-based or state rehabilitation agency. Application of rehabilitation counseling methods, techniques, and vocational knowledge in working with persons with disabilities. Lecture, two hours; laboratory, 14 hours per week. May be repeated to a maximum of six credits with consent of instructor. Prereq: A minimum of 12 graduate hours in rehabilitation counseling and consent of instructor.

RC 720 INTERNSHIP IN REHABILITATION COUNSELING. (3,6,9)
Advanced learning experiences in a rehabilitation setting or agency. Lecture, two hours; laboratory, 14, 28 or 42 hours per week. May be repeated once for a maximum of nine credits. Prereq: A minimum of successful completion of one year in the Rehabilitation Counseling Program and RC 710 and consent of instructor.

RC 740 ADMINISTRATION, SUPERVISION AND PROGRAM EVALUATION IN REHABILITATION COUNSELING. (1-3)
Administrative and supervisory aspects of rehabilitation service delivery. Administration, clinical and technical supervision, staffing, and organizational structure(s) of the rehabilitation service delivery system (state, local, and federal). Research, program evaluation, political and ethical aspects of rehabilitation administration and supervision are overviewed. Prereq: A minimum of 12 graduate hours in rehabilitation counseling or consent of instructor.

RC 750 REHABILITATION RESEARCH. (1-3)
Application of basic research principles to the field of rehabilitation. Specific focus on client characteristics, constructs of disability, rehabilitation outcomes, counselor-client variables, and rehabilitation service components. Rehabilitation research and utilization projects, research funding and related grant mechanisms. Prereq: A basic research course and RC 520 or consent of instructor.

RC 760 CONTEMPORARY PRACTICES IN REHABILITATION. (1-3)
Contemporary practices including supported employment, independent living, engineering and technology, psychology, law, ethics, cultural diversity, aging, and present and future trends in the field of rehabilitation. Analysis of legislation, value systems, political and economic fluctuations and research. Prereq: A minimum of 12 graduate hours in rehabilitation counseling or consent of instructor.

RC 782 DIRECTED INDEPENDENT STUDY. (1-3)
Study of an individually selected topic relevant to a student’s academic development. May be repeated to a maximum of six credits. Prereq: Consent of instructor.

RCM Radiation Medicine

RM 472G INTERACTION OF RADIATION WITH MATTER. (3)
Basic aspects of the interaction of ionizing radiation with matter. Bohr atom, atomic spectra, radioactivity, energetics of decay. Sources of radiation, penetration of charged particles, electromagnetic radiation, and neutrons through matter; excitation and ionization processes; selected nuclear reactions; basic radiation detection and dosimetry. Prereq: PHY 213 or 232; MA 114 (may be taken concurrently); or equivalent. (Same as PHY 472G.)

RM 545 RADIATION HAZARDS AND PROTECTION. (3)
An analysis of common radiation hazards encountered in medicine, research, industry, and the environment. Regulations and procedures for the safe use of ionizing and non-ionizing radiations. Lecture; two hours; laboratory, two and one-half hours. Prereq: PHY/RM 472G or consent of instructor. (Same as PHY/RAS 545.)

RM 546 GENERAL MEDICAL RADIOLOGICAL PHYSICS. (3)
The uses and dosimetric aspects of radiation in medicine will be analyzed, including many basic applications in the fields of diagnostic radiology physics, therapy physics, and nuclear medical physics. Prereq or concur: RM/PHY 472G or consent of instructor. (Same as PHY/RAS 546.)

RM 601 ADVANCED RADIATION DOSIMETRY. (2)

RM 647 PHYSICS OF DIAGNOSTIC IMAGING I. (3)
Specialized and advanced topics in diagnostic imaging, including modulation transfer function analysis, image processing algorithms, acceptance testing, CT, NMR, ultrasound, etc. Prereq: PHY/RM/RAS 546 or consent of instructor. (Same as RAS 647.)

RM 648 PHYSICS OF DIAGNOSTIC IMAGING II. (3)
A continuation of RAS/RM 647. Specialized and advanced topics in nuclear medicine imaging physics, including position emission tomographic procedures, emerging new modalities, and quality control. Prereq: RM/RAS 647 or consent of instructor. (Same as RAS 648.)

RM 649 PHYSICS OF RADIATION THERAPY. (3)
Specialized external beam and brachytherapy treatment planning; advanced Bragg-Gray cavity applications, including Ngs and TG-21; calibration, acceptance testing, and quality control of therapy physics equipment. Prereq: RAS/RM/PHY 546 and RAS/RM 601, or consent of instructor. (Same as RAS 649.)

RM 660 GRADUATE PRACTICUM IN RADIATION MEDICINE. (1-6)
Applied field work at the graduate level in the sciences relating to radiation medicine. May be repeated to a maximum of six credits. Prereq: Graduate standing in the bioradiation or medical sciences, plus consent of instructor.

RM 695 RESEARCH IN THE HEALTH-RELATED RADIATION SCIENCES. (1-4)
Independent directed research on theoretical and practical problems in the health-related radiation sciences. May be repeated to a maximum of eight credits. Prereq: Graduate standing in one of the radiation-related sciences, plus consent of instructor. (Same as RAS 695.)

RM 740 MAMMALIAN RADIATION BIOLOGY. (2)
The physical and biological sequelae of radiation effects will be discussed emphasizing human and mammalian responses and radiation health. Emphasis will be for health and medical workers. Prereq: Consent of instructor; BIO/RM 540 or RM 546 or equivalent background. (Same as BIO 740.)

RM 815 FIRST-YEAR ELECTIVE, RADIATION MEDICINE. (1-3)
With the advice and approval of his or her faculty adviser, the first-year student may choose approved electives offered by the Department of Radiation Medicine. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the first-year curriculum. Pass-fail only. Prereq: Admission to first year, College of Medicine.

RM 825 SECOND-YEAR ELECTIVE, RADIATION MEDICINE. (1-4)
With the advice and approval of his or her faculty adviser, the second-year student may choose approved electives offered by the Department of Radiation Medicine. The intent is to provide the student an opportunity for exploration and study in an area which supplements and/or complements required course work in the second-year curriculum. Pass-fail only. Prereq: Admission to second-year medical curriculum and approval of adviser.

RM 842 RADIATION ONCOLOGY. (1)
Use of radiation therapy in clinical treatment of malignancy. Staging, histology, spread, treatment techniques, acute and late effects of radiation therapy. Prereq. RM 740 and an introductory anatomy course, or equivalent, and consent of instructor.

RM 848 PRACTICUM IN BRACHYTHERAPY PHYSICS. (1-3)
This course offers practicum training in the clinical use of therapy physics and health physics in brachytherapy. May be repeated to a maximum of three credits. Laboratory: 40 hours per week. Prereq: RM/hrs 649, or equivalent, and consent of instructional staff.

RM 849 PRACTICUM IN EXTERNAL BEAM THERAPY PHYSICS. (1-6)
This course offers practicum training in the professional use of therapy physics in external beam radiation therapy. May be repeated to a maximum of six credits. Laboratory: 40 hours per week. Prereq: RM/hrs 649, or equivalent, and consent of instructor.
RM 850-890 FOURTH-YEAR ELECTIVE FOR MEDICAL STUDENTS. (1-6)
With the advice and approval of the faculty adviser and the Student Progress and Promotions Committee, the fourth-year student may choose approved electives offered by the various departments in the College of Medicine. The intent is to provide the student an opportunity to develop his fund of knowledge and clinical competence. Prereq: Admission to the fourth year, College of Medicine and/or permission of the Student Progress and Promotions Committee.

Approved electives:
RM 850 RADIATION ONCOLOGY
RM 852 RESEARCH IN RADIATION MEDICINE

RS Religious Studies

RS 130 INTRODUCTION TO COMPARATIVE RELIGION. (3)
Comparative study of major world and selected regional religions with emphasis on analysis of belief, ritual, artistic expression and social organization. Eastern and Western religions are considered. (Same as ANT 130.)

RSD Restorative Dentistry

RSD 812 PRINCIPLES OF OCCLUSION AND TOOTH MORPHOLOGY. (6)
This course includes a detailed study of the teeth, individually and collectively. The significance of tooth form and function is emphasized as is the relationship of this knowledge to preventive clinical dentistry. Those principles of occlusion and mandibular physiology which are common to all disciplines of clinical dentistry are coordinated to provide the student with a basic understanding of the fundamentals involved. Lecture, 24 hours; laboratory, 118 hours; self-instruction, 25 hours. Prereq: Admission to the College of Dentistry or consent of course director.

RSD 814 PRECLINICAL RESTORATIVE DENTISTRY I. (5)
This course is a preclinical introduction to the etiology, pathology, prevention and treatment of dental caries. Fundamentals of dental hard-tissue surgery and the restoration of these tissues with silver amalgam, intermediate restorative materials, composite restorative material, and acrylic resin are presented. The materials science and correct manipulation of these materials are emphasized. Procedures are done on manikins and extracted teeth in a laboratory setting. Lecture, 37 hours; laboratory, 91 hours. Prereq: Admission to the College of Dentistry or consent of course director.

RSD 821 CLINICAL RESTORATIVE DENTISTRY I. (3)
This course emphasizes clinical application of the principles taught in preclinical courses. Concepts of diagnostic and therapeutic procedures as well as preventive measures are applied in the clinic with emphasis on the demonstration of competency in rendering primary care type treatment procedures. Prereq: RSD 814; coreq: RSD 824.

RSD 822 DIAGNOSIS AND TREATMENT OF TEMPOROMANDIBULAR DISORDERS. (3)
This course is directed toward the examination, diagnosis, treatment planning and treatment of functional disturbances of the masticatory system. Primary emphasis will be placed on acute muscle disorders and disc-interference disorders. The course emphasizes both theory and practice and includes clinical experience in the examination and treatment of functional disturbances in the masticatory system. The student will gain experience in using articulators, fabrication of occlusal splints and preclinical experiences in selective grinding. Lecture, 31 hours; clinic, 29 hours; laboratory, 27 hours. Prereq: CDS 811, RSD 812.

RSD 824 PRECLINICAL RESTORATIVE DENTISTRY II. (6)
This course is a preclinical continuation of RSD 814, placing emphasis on dental hard tissue surgery for extensively damaged teeth and on their restoration to meet the biological needs of the patient. Tooth preparation and restoration using dental casting alloys are performed on manikins and extracted teeth. The materials science and correct manipulation of investments, alloys and cements used to make cast restorations are emphasized. Knowledge gained in dental morphology and occlusion is applied in this course. Lecture, 42 hours; laboratory, 114 hours. Prereq: RSD 814 or consent of course director.

RSD 830 PRINCIPLES OF FIXED PROSTHODONTICS. (2)
This course is a lecture series concerning diagnosis and treatment planning for fixed prosthodontics care and the principles of providing that care. The relationship of tooth restoration and replacement to occlusion, periodontics, orthodontics and removable prosthodontics in both treatment planning and treatment is emphasized. Lecture, 33 hours; self-instruction, 11 hours. Prereq: RSD 821 and RSD 824.

RSD 831 CLINICAL RESTORATIVE DENTISTRY II. (4)
A continuation of RSD 821 as well as some clinical application of principles taught in RSD 824. The emphasis continues to be on the delivery of primary care type treatment with increasing competency and proficiency. Some emphasis is directed toward elementary experiences in rehabilitative type treatment procedures and occlusal dysfunctions. Clinic, 120 hours. Prereq: RSD 821 and RSD 824; coreq: RSD 830 and RSD 834.

RSD 832 DENTAL BIOMATERIALS. (2)
In this course, the materials science, proper manipulation and biocompatibility of a wide variety of dental biomaterials are examined. The durability and biocompatibility of similarly utilized materials are compared. Diagnosis of the causes of clinical materials-related failures is emphasized. Lecture, 40 hours. Prereq: PRO 820 and RSD 824 or consent of course director.

RSD 834 PRECLINICAL RESTORATIVE DENTISTRY III. (3)
This is a preclinical course with emphasis on dental hard tissue surgery and restorative procedures for anterior and posterior fixed prosthodontics. A preventive orientation is stressed as theory is applied in practice using manikins. Knowledge gained in RSD 822 and RSD 824 is applied to more extensive restorations. Lecture, 10 hours; laboratory, 78 hours. Prereq: RSD 821 and RSD 824.

RSD 840 RESTORATIVE DENTISTRY UPDATE. (1)
Students are provided current information on advanced restorative dentistry clinical procedures and materials. Emphasis will be given to diagnosis, treatment planning and treatment of the complex restorative dentistry patient. The format of the course will be “clinical case presentation.” Prereq: RSD 830 and RSD 834.

RSD 841 CLINICAL RESTORATIVE DENTISTRY III. (3)
As the final phase in the undergraduate clinical continuum, this course continues to emphasize primary care concepts and proficiency. In addition, more complicated rehabilitative type care and occlusal dysfunction problems are encountered by the student under faculty supervision. Clinic, 145 hours. Prereq: RSD 830, RSD 831 and RSD 834.

RSD 850 RESTORATIVE DENTISTRY ELECTIVE. (1-10)
Elective courses offered by the Department of Restorative Dentistry provide opportunities for further study of or experience in various aspects of restorative dentistry. Topics may include occlusion in oral reconstruction, philosophies of occlusion, complex restorative dentistry, dental ceramics and esthetics, and dental physical sciences. Hours variable, ranging from a minimum of 16 hours lecture/discussion to a maximum of 10 weeks clinical experience. May be repeated to a maximum of 10 credits. Prereq: The minimum year in dental school and any course prerequisites will be announced for each topic.