

Changes:

College of Engineering
Civil and Environmental Engineering

CVE 552 Structural Timber Design

Change in prerequisite to “CVE 354 or permission of instructor.”

CVE 563 Prestressed Concrete

Change in prerequisite to “CVE 465 or permission of instructor.”

CVE 564 Advanced Reinforced Concrete

Change in prerequisite to “CVE 465 or permission of instructor.”

CVE 565 Structural Dynamics

Change in prerequisite to “CVE 453 or permission of instructor.”

CVE 582 (OCE 582) Seabed Geotechnics

Change in title to “Marine Geotechnics.”

Change in description to “Geotechnical engineering principles as applied to marine problems. Site survey and in-situ testing, soil properties, shallow foundations and deadweight anchors, piles and pile anchors, direct and drag embedment anchors, scour.”

CVE 651 Design of Highway Bridges

Change in course number to “CVE 566.”

Change in prerequisite to “(CVE 453, 460, and 465) or permission of instructor.”

College of Arts and Sciences
Physics

PHY 510 Mathematical Methods of Physics I

Change in description to “Topics designed to include applications in physics: linear algebra; determinants, matrices, eigenvalues; properties of finite and infinite bases; basics of numerical linear algebra; probability and statistics; Monte Carlo methods.”

PHY 565 Photomedicine

Change in title to “Radiation Detection, Instrumentation and Data Analysis.”

Change in description to “Provide the student a base knowledge of radiation detection as it pertains to radiation therapy, diagnostic imaging, and nuclear medicine.”

Change in prerequisite to “Permission of instructor.”

PHY 625 Statistical Physics II

Change in description to “Statistical physics of soft condensed matter: colloids, polymers, gels, liquid crystals, amphiphiles, biological matter. Interactions, conformations, hierarchical structures, phase transitions, aggregation, self-assembly, kinetics, transport.”

Change in prerequisite to “PHY 525.”

New Courses

College of the Environment and Life Sciences
Nutrition and Food Science

NFS 559X Standards for Dietetics Research and Practice (1 cr.)

Review of standards governing dietetics research and practice including human subjects, HIPAA, and the Code of Ethics. (Online 1) Pre: Enrolled in the MS in Dietetics Program

Natural Resources Science

NRS 543 Public Engagement with Science (3 crs.)

Theoretical and practical aspects of public engagement with science, policy, and management, with an emphasis on communication. (Lec. 3) Pre: Graduate Standing or permission of instructor.

College of Pharmacy
Biomedical and Pharmaceutical Sciences

BPS 557 Modern Spectroscopic Techniques in Drug Discovery (3 crs.)

Introduces spectroscopic techniques needed to understand data from contemporary biomedical science research, especially macromolecular NMR spectroscopy. Focused on developing data interpretation skills, and the ability to critically evaluate current practices. (Lec. 3) Pre: organic chemistry, CHM227 or equivalent, or permission of instructor. Open to undergraduates in Chemistry and BPS program at the junior and senior levels.

Additional Curricular Matters

1) College of Engineering Electrical Engineering

**Notice of Change for Electrical Engineering Graduate Program
Date: February 5, 2015**

A. PROGRAM INFORMATION

- 1. Name of institution** University of Rhode Island
- 2. Name of department, division, school or college**
Department: **Electrical, Computer and Biomedical Engineering**
College: **College of Engineering**
- 3. Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.**
Initiation date: **Fall 2015 semester**
First degree date: **not applicable**
- 4. Intended location of the program**
Current location (Kelley Hall)
- 5. Summary description of proposed program (not to exceed 2 pages).**
see attached

If applicable, please include the existing URI catalog language and proposed catalog language changes that relate to your request.

6. Signature of the President

_____ David M. Dooley

Summary Description: The proposed changes are to the existing language in the University Catalog that describes the Electrical Engineering (ELE) Graduate Program. The two proposed changes will clarify the ELE Department's policies and requirements for the Master of Science degree in Electrical Engineering; these changes do not alter the existing requirements for the MS degree.

1. The "Program requirements" paragraph under the "Master of Science" section includes the following language:

"One credit of the departmental seminar (ELE 601 and/or 602) is required of all students. Up to two credits of seminar may be used toward the 30-credit master's requirement."

Under this proposal, this language will be changed to:

"One credit of the departmental seminar (ELE 601 or ELE 602) is required of all students. Up to two credits of seminar (one each of ELE 601 and ELE 602) may be used toward the 30-credit master's requirement."

This change clarifies how the departmental seminar courses may be used to satisfy the Program requirements.

2. The "Program requirements" paragraph under the "Master of Science" section includes the following statement:

"For the thesis option, the thesis counts as six to nine credits."

Under this proposal, this statement will be changed to:

"For the thesis option, the thesis counts as six to nine credits, but more than six credits requires prior written justification and approval by the student's thesis committee, and the Graduate Program Director or Department Chair."

A typical ELE Masters thesis currently corresponds to six credit hours. If the research is more involved, then it is justified to allow additional (up to three) credits. This language change clarifies when and how more than six credits are allowed for thesis research.

2) College of Arts and Sciences Physics

**Notice of Change for Physics
Programs Date: 01/28/2015**

A. PROGRAM INFORMATION

1. Name of institution

University of Rhode Island

2. Name of department, division, school or college

Department: Physics

College: Arts and Sciences

3. Intended initiation date of program change. Include anticipated date for granting first degrees or certificates, if appropriate.

Initiation date: 01/09/2015

First degree date: NA

4. Intended location of the program

Physics Department, URI

5. Summary description of proposed program (not to exceed 2 pages).

On January 21, 2015 the faculty of the Physics Department voted to create a second track that would lead toward the Ph.D. in Physics and to change PHY625 course. Over the past few years, it was found that the curriculum needs of the students pursuing more applied research differed from those who were pursuing more traditional physics research. Rather than approving modifications to the programs of study for those students pursuing applied physics, the department determined it would be better to establish an “applied physics” track toward the Ph.D. Both tracks have identical credit requirements and are deemed to be of equal difficulty

If applicable, please include the existing URI catalog language and proposed catalog language changes that relate to your request.

See attached catalog language information

6. Signature of the President

David M. Dooley

Existing URI catalog language

Physics

M.S., Ph.D.

401.874.2633

Faculty: Associate Professor Andreev, *chair*. Professors Heskett, Kahn, Kaufman, Malik, Meyerovich, Muller, Nightingale, and Steyerl; Associate Professors Andreev and Reshetnyak; Adjunct Professor McCorkle; Adjunct Associate Professors Bozyan, Karbach, and Ruffa; Professors Emeriti Desjardins, Hartt, Letcher, Nunes, and Pickart.

Specializations

Astronomy: low-frequency radio sources and optical counterparts.

Biological physics: membrane biophysics, molecular motors, fluorescence spectroscopy and microscopy.

Computational physics: classical and quantum Monte Carlo methods, large-scale parallel computations, optimization, many-body interactions and invariants, finite-size scaling, recursion method.

Experimental condensed matter physics: electronic and structural properties of surfaces and thin films studied via low-energy electron diffraction, Auger electron spectroscopy, X-ray standing wave and photoemission techniques (in-house and at the Brookhaven National Laboratory synchrotron facility); surfaces and interfaces in thin films and multilayers studied via X-ray and neutron reflection and diffraction (in-house and at the National Institute of Standards and Technology reactor facility); epitaxial growth, magnetism in nanoparticles and on surfaces via neutron and X-ray scattering; characterization of electromigration by electrical and optical techniques, Rutherford backscattering, and scanning tunneling microscopy.

Experimental neutron physics: ultracold neutrons used to study beta-decay, neutron optics (at the Institut Laue-Langevin, Grenoble).

Medical physics and nanotechnology: drug delivery, whole-body fluorescence imaging, cancer nanotechnology.

Nonlinear dynamics and chaos: turbulence, Hamiltonian chaos, integrability in quantum mechanics.

Theoretical condensed matter physics: surface physics, phase transitions and critical phenomena, critical dynamics, superconductivity, quantum transport, nano-scale films and clusters, disordered systems, low-dimensional systems, spin dynamics, Bethe ansatz.

Theoretical low-temperature physics: Fermi and Bose quantum liquids, solids and gases; spin-polarized quantum systems.

Master of Science

Admission requirements: GRE and advanced test recommended; bachelor's degree with major in physics preferred.

Program requirements: PHY 510, 520, 525, 530, 560, 570, and 580 are required of all students. For both the thesis and the nonthesis options, the student will complete 30 credits, of which no more than six may be below the 500 level. For the nonthesis option, at least one course will require a substantial paper involving significant independent study, and the student must pass a final written and oral examination.

Doctor of Philosophy

Admission requirements: GRE and advanced test recommended; bachelor's degree with major in physics preferred. Master's degree is not required.

Program requirements: PHY 510, 520, 525, 530, 570, 580, 610, 625 (or 626), 630, 670, and 680. There is no formal departmental language requirement, although the candidate's committee may require demonstration of language proficiency. Successful completion of a qualifying examination is required of all students. *This examination is normally expected to be taken in the summer preceding the second year of studies.*

Five-Year Program in Medical Physics

The Physics Departments also offers a five-year program of studies leading to a B.S. in physics and a M.S. in medical physics. The M.S. degree part of the program requires that the student take PHY 540, 545, 550, 552, 555, 560, 565, 691, 610; SOC 224; ELE 562 + lab, ELE 564 + lab. The rest of the courses are those indicated on the schedule in the undergraduate section of this catalog (see “Medical Physics” under Physics in Arts and Sciences).

Proposed URI catalog language for graduate program

Physics

M.S., Ph.D.

401.874.2633

Faculty: Professor Andreev, *chair*. Professors: Andreev, Heskett, Kahn, Kaufman, Malik, Meyerovich, Muller, Nightingale, Reshetnyak and Steyerl; Assistant Professor: Ganikhanov

Specializations

Astrophysics: high energy extragalactic radio astrophysics.

Biological physics: membrane biophysics; membrane-associated folding/unfolding; molecular motors; steady-state and kinetics fluorescence and circular dichroism studies; calorimetry; small angle x-ray scattering on biological objects (at the European Synchrotron Radiation Facility, Grenoble); fluorescence microscopy; fluorescence polarization microscopy; spectral analysis from cells; electric cell substrate impedance sensing on cells.

Computational physics: classical and quantum Monte Carlo methods, large-scale parallel computations, optimization, many-body interactions and invariants, finite-size scaling.

Experimental condensed matter physics: electronic and structural properties of surfaces and thin films studied via low-energy electron diffraction, Auger electron spectroscopy, photoemission techniques (inhouse and at the Brookhaven National Laboratory synchrotron facility); surfaces and interfaces in thin films and multilayers studied via X-ray and neutron reflection and diffraction (in-house and at the National Institute of Standards and Technology reactor facility); epitaxial growth, magnetism in nanoparticles and on surfaces via neutron and X-ray scattering; characterization of Lithium Ion Batteries using Hard X-ray Photoemission Spectroscopy (HAXPES), Rutherford backscattering, and scanning tunneling microscopy; ultrafast dynamics of hot carriers in 2-dimensional materials studied with multi-color femtosecond spectroscopy; phonon decay and vibrational dynamics in traditional and soft condensed matter studied by coherent Raman spectroscopy techniques; sub-optical cycle waveform generation.

Experimental neutron physics: ultracold neutrons used to study beta-decay, neutron optics (at the Institut Laue-Langevin, Grenoble).

Medical physics, physics oncology and nanotechnology: novel approaches in drug delivery and tumor targeting; whole-body and *ex vivo* fluorescence imaging; gold and magnetic nanoparticles; laser and x-ray radiation; hyperthermia; liposome delivery.

Statistical physics: Bethe ansatz, density functional theory, fractional exclusion statistics, applications to spin systems, quantum gases, granular matter, and biological matter.

Theoretical condensed matter physics: surface physics, phase transitions and critical phenomena, critical dynamics, superconductivity, quantum transport, systems with random rough boundaries, nano-scale films and clusters, disordered systems, low-dimensional systems, spin dynamics, nonlinear optics.

Theoretical low-temperature physics: Fermi and Bose quantum liquids, solids and gases; spin-polarized

quantum systems, ultracold neutrons in quantizing gravity field.

Master of Science

Admission requirements: GRE and advanced test recommended; bachelor's degree with major in physics preferred.

Program requirements: PHY 510, 520, 525, 530, 560, 570, and 580 are required of all students. For both the thesis and the nonthesis options, the student will complete 30 credits, of which no more than six may be below the 500 level. For the nonthesis option, at least one course will require a substantial paper involving significant independent study, and the student must pass a final written and oral examination.

Doctor of Philosophy

Admission requirements: GRE and advanced test recommended; bachelor's degree with major in physics preferred. Master's degree is not required.

Program requirements: PHY510, PHY520, PHY525, PHY530, PHY570, PHY580 are core courses required for all students. In addition to the core courses, students in the Physics track will be required to take: PHY610, PHY630, PHY670, PHY680, and either one of (PHY625, PHY 626). In addition to the core courses, students in the Applied Physics track will be required to take: PHY540, PHY 560, one of (PHY625, PHY 626), one of (PHY630, PHY670), and one of (PHY610, PHY680). The choice of tracks and courses should be done with adviser's approval. No replacements by courses from outside the Department are allowed. There is no formal departmental language requirement, although the candidate's committee may require demonstration of language proficiency. Successful completion of a qualifying examination is required of all students. *This examination is normally expected to be taken in the summer preceding the second year of studies.*

Five-Year Program in Medical Physics

The Physics Departments also offers a five-year program of studies leading to a B.S. in physics and a M.S. in medical physics. The M.S. degree part of the program requires that the student take PHY 540, 545, 550, 552, 555, 560, 565, 691, 610; SOC 224; ELE 562 + lab, ELE 564 + lab. The rest of the courses are those indicated on the schedule in the undergraduate section of this catalog (see "Medical Physics" under Physics in Arts and Sciences).