

Item AS: A-2 (a)

Degree Proposal for the Professional Master of Science in Medical Physics (CIP 400801) at Florida Atlantic University

The Department of Physics at Florida Atlantic University proposes to offer a professionally oriented Professional Master of Science in Medical Physics (PSMMP) degree with an implementation date of the 2010-2011 academic year. The PSMMP is an interdisciplinary program that develops advanced scientific knowledge and professional skills with hands-on learning through on site training. The proposed PSMMP program was prepared in consultation with professional medical physicists and medical doctors in the community. It aims to engage students interested to develop a career in the health related industry and help them become scientists uniquely suited to the 21st-century workplace. Below are some important features of the 37 credit hour degree proposal:

- Medical Physics is an applied branch of physics devoted to the application of concepts and methods from physics to the diagnosis and treatment of human disease. According to the statistics of the American Institute of Physics, Medical Physicists are in demand and well-compensated professionals (www.aip.org).
- According to the American Association of Physicists in Medicine (AAPM) and the Duke University (www.duke.edu) there are about 4,000 Medical Physicists in the U.S. The current need is for approximately 250-300 new Medical Physicists per year. In addition, about 50% of current Medical Physicists are over the age of 50, meaning that there is likely to be an increasing shortage in the coming years due to retirement. Thus, there is a healthy job market for medical physics graduates, especially within the population growth of South Florida.
- Career paths for Medical Physicists include: (1) Radiation Therapy (2) Diagnostics (3) Nuclear Medicine (4) Health Physics (5) Academia (6) Companies that produce treatment equipment, treatment planning systems, and support materials. National statistics from the American Association of Physicists in Medicine (AAPM), www.aapm.org, show that approximately 76% of Medical Physicists work as Radiation Therapy Physicists. The proposed PSMMP program provides specialization in Radiation Therapy. As the program grows specialization in Diagnostic Imaging will be added.
- At FAU there are opportunities for developing this program by using existing resources across three Colleges involving Faculty and courses from the: Charles E. Schmidt College of Science, Charles E. Schmidt College of Biomedical Science, and College of Engineering and Computer Science. To the advantage of the proposed PSMMP, the Medical Physics Graduate Certificate Program (MPGCP) has started Spring 2009; four out of the five core courses in the proposed program are already offered to the students registered for the Certificate, while one is a prerequisite for the MPGCP.
- A major asset in developing this PSMMP program is the support shown by Medical Physicists and Doctors in the area hospitals. They serve as members of the PSMMP Advisory Board. They already offer clinical training and classroom instruction to the current students of the MPGCP through courtesy appointments.

This kind of support, combined with the overall growth of South Florida, provides unique opportunities for professional placement of our graduates.

- Three companies (Nucletron, Best Medical International and SERNOX) support the proposed program while their representatives serve on the PSMMP Advisory Board.
- Likely pools of students include:
 - The graduate and undergraduate students of the Physics Department. Four of them are enrolled in the Medical Physics Graduate Certificate Program (MPGCP).
 - Graduate students of the Department of Chemistry and Biochemistry. Two of them are enrolled in Medical Physics courses as one of their electives, without officially being admitted in the program yet.
 - Students in the College of Engineering have expressed interest in PSMMP.
 - Professionals working in hospitals as dosimetrists with a BS in Physics or Engineering and want to improve their professional status have expressed interest. One of them is currently enrolled in MPGCP.
- There is only one similar program in the state of Florida. It is at the University of Florida, but it is not listed as a Professional MS. It offers Master and Doctoral degrees in Medical Physics and is accredited by the Commission on Accreditation of Medical Physics Educational Programs (CAMPEP). According to the Interim Chairman and Director Dr. David E. Hintenlang, DABR, FACMP, they graduate an average of 9 students per year about evenly divided between MS and PhD degrees.
- A partnership contract was signed last May between FAU and Boca Raton Community Hospital for the clinical training (practicum) of the students in the Medical Physics Program. Summer 2009 two students of the Medical Physics Graduate Certificate Program (MPGCP) were enrolled for the course Radiation Therapy Track Practicum and trained at Lynn Cancer Center of the BRCH.
- A similar partnership contract was signed March 2010 with the Wellington Regional Medical Center.
- The Cancer Institute at the FAU Research Park supports the PSMMP program.

Institutional and State University System Missions

The proposed professional PSMMP program fits well with the goals and mission statements of both the SUS (<http://www.flbog.org/StrategicResources/>) and Florida Atlantic University (<http://www.fau.edu/strategicplan/mission>, <http://www.fau.edu/strategicplan/goals.php>).

The four, broader goals set forth by the SUS include:

- Goal 1: Access to and production of degrees
- Goal 2: Meeting statewide professional and workforce needs
- Goal 3: Building world-class academic programs and research capacity
- Goal 4: Meeting community needs and fulfilling unique institutional responsibilities.

The 7 goals within the FAU Strategic Plan include:

Goal 1: Providing increased access to higher education

Goal 2: Meeting statewide professional and workforce needs

Goal 3: Building world-class academic programs and research capacity

Goal 4: Meeting community needs and fulfilling unique institutional responsibilities

Goal 5: Increasing the university's visibility.

- The highly technological interdisciplinary education in the proposed PSMMP is in alignment with the SUS Strategic Plan's Goal 2 on Meeting Statewide Professional and Workforce Needs.
- The proposed PSMMP has established partnerships with local hospitals for the clinical practicum of the students. This is consistent with the SUS the Florida Atlantic University's Strategic Plan Goal 4 to build partnerships in key areas of the community, and the Mission Statement of the Charles E. Schmidt College of Science.
- The proposed PSMMP is the only professional MS in Medical Physics listed under PSM Professional Science Master's Initiative State of Florida (www.FLPSM.org). Also, it is included in the proposal: A Statewide Initiative in Florida for Professional Masters Programs –A Proposal for Implementation. From the Florida Council of Graduate Deans Request of the Board of Governors. These both support FAU's Goal 5 by increasing the university's visibility in the community and the State of Florida.
- In addition PSMMP meets Nation's needs for professional degrees as stated by the NSF program solicitation 09-607.

Fiscal Implications

- The main cost of implementing the program is met through reallocated dollars from current salary resources, therefore providing an important educational opportunity for FAU's service area.
- No additional funding is requested for the program apart from a minor adjustment to the physics department staff.
- No additional space is required for the program, except for two offices for the Research Affiliate Professors.
- No special equipment or library resources are needed to implement the program.
- Of the eight courses in the proposed PSMMP to be offered by the Department of Physics, six are already in current programs of the department while one is listed in the catalog as elective. Only one course is new and it will be offered by the Affiliate Research Professors/Medical Physicists (courtesy appointments).
- The elective courses were selected from those that are offered at FAU in the Charles E. Schmidt College of Science, or the Charles E. Schmidt College of Biomedical Science.