

## Long Form Course and Curriculum Proposal

### I. Heading and Proposal Number

A. University of North Carolina at Charlotte

New Graduate Course

Course Proposal from the Department of Physics and Optical Science

B. Proposal Number PHYS 5-9-08

C. Establishment of a new graduate course: Fundamentals of Biomedical Optics

### II. Content of Proposal

A. 1. **Summary.** The Department of Physics and Optical Science proposes to add the following course to the graduate curriculum, cross-listed as PHYS 6202, OPTI 6202, and OPTI 8202.

#### II. A. 2. **Proposed Catalog Copy**

**PHYS 6202. Fundamentals of Biomedical Optics. (3)** Basic principles underlying tissue optics, laser-tissue interactions, and optical imaging, microscopy, and spectroscopy for medical applications.*(Spring)*

**OPTI 6202. Fundamentals of Biomedical Optics. (3)** Basic principles underlying tissue optics, laser-tissue interactions, and optical imaging, microscopy, and spectroscopy for medical applications.*(Spring)*

**OPTI 8202. Fundamentals of Biomedical Optics. (3)** Basic principles underlying tissue optics, laser-tissue interactions, and optical imaging, microscopy, and spectroscopy for medical applications.*(Spring)*

#### B. Justification

1. There is a growing number of Applied Physics and Optical Science and Engineering graduate students with an interest in biophysics. This course meets the need of providing scholarly courses in the expanding field.
2. As this course is designed for students from varying technical backgrounds such as physics, biology, optics, and engineering, the only prerequisite is a graduate student in good standing and permission of the instructor.
3. The course number is of the level for students studying toward a Master's degree or a Doctorate.

4. This course will increase the number of available courses for students specializing in biophysics or biological applications of optics.

#### C. Impact

1. Graduate students with an interest in biological applications of optics will be served. This includes master's degree students in Applied Physics, including those in the medical physics concentration, and Ph.D. students in optics, engineering, biology, or a related field.
2.
  - a. The course will be taught every spring semester.
  - b. Other courses will not be affected.
  - c. Anticipated enrollment is 10-20 students per semester.
  - d. Other course enrollment would not be affected in a large way. For example, the 30 credit hours required for a non-thesis master's degree requires the offering of 10 courses during a 2-year period. The Department of Physics and Optical Science currently offers about 16 courses on a regular basis.
  - e. This course has not been offered before.
  - f. Other areas of the catalog would not be affected.

#### D. Resources Required

1.
  - a. There is no requirement for new faculty.
  - b. Dr. Nathaniel Fried from the Department of Physics and Optical Science will initially teach the course.
2. There is no requirement for additional facilities.
3. There is no requirement for additional equipment or supplies.
4. There is no requirement for any extraordinary computing resources.
5. There is no requirement for additional audio-visual resources.

#### E. Consultation with the Library

1. Library Consultation is attached.
2. Other departments were no consulted.

#### F. Initiation and consideration of this proposal

1. The graduate studies committee of the Department of Physics and Optical Science approved this proposal and it was unanimously supported by the Department faculty.

#### G. Attachments

1. Library Consultation
2. Proposed course description and outline.