Course Description
BME 416/516 Biomedical Imaging

Instructors: **Ted Trouard, Biomedical Engineering**
Art Gmitro, Radiology

Course Objectives: **This course will introduce the physical and mathematical principles that are the foundation of biomedical imaging. The application of these principles will be demonstrated through Optical Imaging, X-ray Computed Tomography and Magnetic Resonance Imaging.**

Textbook: **The required textbook for this course is "Medical Imaging Signals and Systems" by JL Prince and JM Links (Pearson Education Inc., ISBN 0-13-065353-5). Reading and homework assignments will be given from this text. There will also be handouts from the instructors.**

Assignments: **Reading and homework will be assigned regularly and will include problems from the instructors. Graduate students will also write a term paper. Information on the term paper will be provided in a separate document.**

Exams: **There will be two mid-term examinations and a final examination. For students in BME 516 the midterm exams will each count towards 15% of the total grade and will cover material presented in lecture, homework and reading. The final exam will count towards 25% of the total grade. For students in BME 416 the midterm exams will each count towards 18% of the total grade and will cover material presented in lecture, homework and reading. The final exam will count towards 29% of the total grade. The final will be cumulative but emphasize material covered in the final section of the class.**

Computing: **Computer and network access will be necessary to retrieve information from the course website (hosted on D2L). D2L will be used to distribute updates on homework and other important course information. Additionally, programs such as MATLAB will be needed for some of the homework assignments. The University has a site license for MATLAB and is also available at many OSCAR computer labs around campus. Information on computer accounts and the various computer labs can be obtained through UITS.**

Grading Policy: **Late homework will not be accepted without prior approval. Students may study and work together, but homework should be completed independently. Direct plagiarism on homework assignments cannot be accepted. Cases of suspected academic dishonesty including plagiarism, cheating on tests or altering graded homework will be referred to the appropriate Dean. The academic penalty for academic dishonesty will be an "F" grade. Homework will only be re-graded when there is evidence of grading error. The instructors reserve the right to re-grade the entire homework or test.**

Grading:

BME 516		
Homework	**–**	**25%**
Term Paper	**–**	**20%**
Exams	**–**	**55%**

BME 416		
Homework	**–**	**35%**
Exams	**–**	**65%**

Biomedical Engineering Seminar Series: **Students are strongly encouraged to participate in this seminar series. There will be a number of internationally renowned speakers discussing a variety of topics in biomedical engineering. The seminar schedule can be viewed from the BME seminar webpage . Extra credit can be given to those students not already required to attend the seminar (sorry BME students) that provide a one-page write-up on seminars that they attend to the course coordinator. The amount of extra credit should be discussed with the course coordinator.**