Biomedical Informatics, an emerging interdisciplinary field, deals with biomedical information, data, and knowledge – their storage, retrieval and optimal use for problem solving and decision-making [1]. It touches on all basic and applied biomedical sciences, computer sciences and public health. In this course, we will examine current topics and issues in biomedical informatics including electronic medical records, Obama care, telemedicine, decision support, future technologies, and ethics.

Prerequisites: A Bachelor’s degree in a related area or instructor consent. Programming experience may be useful, but is not required.

Lecturer: N.E. Reed, Office: POST 314E, Office hours: TBD, Phone: 956-8498, E-mail: nreed@hawaii.edu


Grading (see notes below): Midterm project presentation (oral) 10%, Midterm project report 20%, Research paper presentation and discussion 10%, Final project presentation (oral) 25%, Term project report 35%.

Term project: The term project will be on a topic of your choice, subject to the approval of a one page written proposal, submitted no later than the end of the third week of class. The project may consist of a term paper and/or include experimental work, as you choose. Suggestions for possible topics will be available. Midterm progress reports and final project presentations will be presented in class. Midterm reports will be presented approximately during weeks 8-10 of class. Final presentations will be during the last two weeks of the semester (approximately, depending on enrollment). Both will be 20 minutes in length with an additional 5 minutes for questions. The written midterm report will be due the 8th week of class. The term paper/report will be due on Wed. of Finals Week.

Research paper presentation and discussion: You will present a published research journal paper and lead a class discussion on that paper. The paper topic is of your choice, subject to the approval of the instructor. The topic may, or may not, relate to your term project. The paper to be presented should be submitted no later than the fourth week of class. Presentations will be 10 minutes in length, with 15 minutes of discussion. Presentations and discussions will take place throughout the semester. Note: to enable a productive discussion, all students are expected to read all papers, prior to the date of the presentation and actively participate in the discussion.

Topic Outline: The Computer Meets Medicine and Biology: Emergence of a Discipline (Ch. 1), Biomedical Data: Their Acquisition, Storage, and Use (Ch. 2), Cognitive Science and Biomedical Informatics (Ch. 4), System Design and Engineering in Health Care (Ch. 6), Imaging and Structural Informatics (Ch. 9), Electronic Health Record Systems (Ch. 12), Management of Information in Healthcare Organizations (Ch. 13), Evaluation and Technology Assessment (Ch. 11), Essential Concepts for Biomedical Computing (Ch. 5), Consumer Health Informatics and Telehealth (Ch. 14), Biomedical Decision Making: Probabilistic Clinical Reasoning (Ch. 3), Patient-Care Systems (Ch. 16), Imaging Systems in Radiology (Ch. 18), Standards in Biomedical Informatics (Ch. 7), Clinical Decision-Support Systems (Ch. 20).