INSTITUTE for COMPUTATIONAL MEDICINE

BME 580.431:

Introduction to Computational Medicine I

INSTITUTE for COMPUTATIONAL MEDICINE

BME 580.431: Overview

- Weeks 1-6 Computational Physiological Medicine
  - Winslow, Greenstein, Sarma, Anderson, Kudela
- Weeks 7-12 Computational Anatomy
  - Miller, Ratnanather, Oishi, Vogelstein
- Course materials on Blackboard
- Reading assignments *must* be done prior to class mtgs

INSTITUTE for COMPUTATIONAL MEDICINE

BME 580.431: Weeks 1-6

Computational Physiological Medicine (Aug 28 - Oct 14)

- Project oriented, “hands on”
- De-emphasize lectures, no exams
- Assignments involve analysis & modeling of real clinical data (EHR, images), modeling of disease
- Form project groups of 3-4, work on projects together
- Bring laptops with Matlab
- Oral presentation & written project report (graded)
- Submission of fully documented code to Github (graded)

INSTITUTE for COMPUTATIONAL MEDICINE

BME 580.431: Weeks 1-6

Computational Anatomy (Oct 16 - Nov 4)

Shape Analysis

- 2 homeworks, 1 project, “hands on”
- De-emphasize lectures, no exams

Computational Anatomy (Nov 6 - Dec 4)

Statistical Connectomics

- Class problem sets, 1 project, no homework/exams

INSTITUTE for COMPUTATIONAL MEDICINE

Minor in Computational Medicine

HUB article here

Description on ICM website here

Minor in Computational Medicine: Prerequisites

- Calculus I
- Calculus II
- Probability and Statistics: either a single course covering both (e.g. 550.310), or a course devoted to each (e.g., 550.420 and 550.430) – this may be taken concurrent with Introduction to Computational Medicine (see below).
- At least one additional course math or applied mathematics (at least 3 credits)
- At least one course on programming (at least 3 credits)
- At least one course on biological sciences (at least 3 credits)

INSTITUTE for COMPUTATIONAL MEDICINE

Minor in Computational Medicine: Requirements

Required Core:

- Introduction to Computational Medicine I (BME 580.431)
- Introduction to Computational Medicine II (BME 580.432)
- *Computational Molecular Medicine (AMS 550.450)*

INSTITUTE for COMPUTATIONAL MEDICINE

Minor in Computational Medicine: Requirements

- 6 CM courses (including core), ≥ 18 credits, 300-level or above, at least C-
- At most 3/18 credits independent research, as agreed to by minor advisor;
- At least 2 non-core courses must be outside student's home department
- At least 4 courses (can include core electives) with substantial biology or medicine component
- At least 1 non-core course with substantial programming component ("C" designation in electives list)