BIOMEDICAL INFORMATICS
(BIO MD INF)

BIO MD INF 203  Biocomputing Algorithms (4 Units) Winter
Instructor(s): Michael J Keiser
Prerequisite(s): Students are expected to have programming competence in a language such as Python, C, C++, or Fortran. Students should also possess a basic knowledge of statistics (undergrad. level). In addition, to take the course, all incoming for-credit students must pass a brief programming background technical assessment, conducted with a TA by Zoom. It is the student’s responsibility to arrange a meeting for the assessment.

Restrictions: For all iPQB students and Bioengineering students. Others require instructor approval.

Activities: Lecture, Seminar, Clinical, Fieldwork, Independent Study, Project, Web work, Workshop, Practical Experience, Special Projects, Lab skills, Lab science, Conference, Discussion

Introduction to computational issues and methods used in the field of bioinformatics and computational biology. This course emphasizes the implementation, analysis, and validation of methods. It is about attacking computational problems in biology, not expert use of existing tools. Areas addressed include analytical thinking, problem decomposition, and algorithm design and implementation. Assignments will focus on the design and implementation of key bioinformatics algorithms.

School: Graduate Division
Department: Biological And Medical Informatics Program
May the student choose the instructor for this course? No
Does enrollment in this course require instructor approval? No
Course Grading Convention: Letter Grade
Graduate Division course: Yes
Is this a web-based online course? Yes
Is this an Interprofessional Education (IPE) course? Yes
May students in the Graduate Division (i.e. pursuing Master or PhD) enroll in this course? Yes

BIO MD INF 206  Statistical Methods for Bioinformatics (4 Units) Fall
Instructor(s): Katie Pollard
Prerequisite(s): Upper division course work in biological sciences including knowledge of proteins and protein structure, computer literacy.

Restrictions: None.

Activities: Lecture, Seminar, Clinical, Fieldwork, Independent Study, Project, Web work, Workshop, Practical Experience, Special Projects, Lab skills, Lab science, Conference, Discussion

Broad survey of bioinformatics with accompanying assignments. Topics covered include genomics, database searching, family/super-family analysis, structural genomics, complex systems, genetic circuits, and protein-protein interactions.

School: Graduate Division
Department: Biological And Medical Informatics Program
May the student choose the instructor for this course? No
Does enrollment in this course require instructor approval? No
Course Grading Convention: Letter Grade
Graduate Division course: Yes
Is this a web-based online course? Yes
Is this an Interprofessional Education (IPE) course? No
May students in the Graduate Division (i.e. pursuing Master or PhD) enroll in this course? Yes

BIO MD INF 219  Special Topics in Bioinformatics (3 Units) Fall, Spring
Instructor(s): Staff
Prerequisite(s): None.

Restrictions: Priority given to first-year graduate students.

Activities: Lecture, Seminar, Clinical, Fieldwork, Independent Study, Project, Web work, Workshop, Practical Experience, Special Projects

Each course offering will focus on the literature of a current important area of Bioinformatics. Students will be expected to read assigned papers critically before class and to present and discuss papers in class. Students will also be expected to write and present a brief research proposal based upon their reading. Topics in Molecular, Cellular, developmental, systems, and computation biology will be covered in separate course offerings.

School: Graduate Division
Department: Biological And Medical Informatics Program
May the student choose the instructor for this course? Yes
Does enrollment in this course require instructor approval? No
Course Grading Convention: P/NP (Pass/Not Pass) or S/U (Satisfactory/ Unsatisfactory)
Graduate Division course: Yes
Is this a web-based online course? No
Is this an Interprofessional Education (IPE) course? No
May students in the Graduate Division (i.e. pursuing Master or PhD) enroll in this course? Yes
Repeat course for credit? Yes
BIO MD INF 220  Informatics Seminar (1 Units) Fall, Winter, Spring
Instructor(s): Ryan D Hernandez
Prerequisite(s): None.

Restrictions: n/a
Activities: Lecture, Seminar, Clinical, Fieldwork, Independent Study, Project, Web work, Workshop, Practical Experience, Special Projects

This course consists of presentation and discussion of research in quantitative biology and bioinformatics by outside speakers.

School: Graduate Division
Department: Biological And Medical Informatics Program
May the student choose the instructor for this course? No
Does enrollment in this course require instructor approval? No
Course Grading Convention: P/NP (Pass/Not Pass) or S/U (Satisfactory/Unsatisfactory)
Graduate Division course: Yes
Is this a web-based online course? Yes
Is this an Interprofessional Education (IPE) course? Yes
May students in the Graduate Division (i.e. pursuing Master or PhD) enroll in this course? Yes
Repeat course for credit? Yes

BIO MD INF 221  Informatics Rotation (1-8 Units) Fall, Winter, Spring, Summer
Instructor(s): Staff
Prerequisite(s): None

Restrictions: None
Activities: Lecture, Seminar, Clinical, Fieldwork, Independent Study, Project, Web work, Workshop, Practical Experience, Special Projects

An introduction to the specific research currently underway within a faculty member’s laboratory.

School: Graduate Division
Department: Biological And Medical Informatics Program
May the student choose the instructor for this course? Yes
Does enrollment in this course require instructor approval? Yes
Course Grading Convention: Letter Grade, P/NP (Pass/Not Pass) or S/U (Satisfactory/Unsatisfactory)
Graduate Division course: Yes
Is this a web-based online course? Yes
Is this an Interprofessional Education (IPE) course? Yes
May students in the Graduate Division (i.e. pursuing Master or PhD) enroll in this course? Yes
Repeat course for credit? Yes

BIO MD INF 222  Student Informatics Seminar (1 Units) Fall, Winter, Spring
Instructor(s): Ryan D Hernandez
Prerequisite(s): None

Restrictions: Must be a student in the Biological & Medical Informatics Graduate Program
Activities: Lecture, Seminar, Clinical, Fieldwork, Independent Study, Project, Web work, Workshop, Practical Experience, Special Projects, Lab skills, Lab science, Conference, Discussion

This course gives students the opportunity to develop and polish their presentation and research skills. All second year and above BMI students present their research to other students, postdocs and faculty. Their presentations are critically evaluated and they are provided with constructive feedback regarding their discussion topic and presentation skills.

School: Graduate Division
Department: Biological And Medical Informatics Program
May the student choose the instructor for this course? No
Does enrollment in this course require instructor approval? No
Course Grading Convention: P/NP (Pass/Not Pass) or S/U (Satisfactory/Unsatisfactory)
Graduate Division course: Yes
Is this a web-based online course? Yes
Is this an Interprofessional Education (IPE) course? Yes
May students in the Graduate Division (i.e. pursuing Master or PhD) enroll in this course? Yes
Repeat course for credit? Yes

BIO MD INF 223  Critical Topics in Biomedical Informatics (1 Units) Fall, Winter, Spring
Instructor(s): Ryan D Hernandez, Brian K Shoichet
Prerequisite(s): None.

Restrictions: None.
Activities: Lecture, Seminar, Clinical, Fieldwork, Independent Study, Project, Web work, Workshop, Practical Experience, Special Projects, Lab skills, Lab science, Conference, Discussion

Critical review of published scientific papers from scholarly journals, including comprehension, analysis and evaluation of published scientific data.

School: Graduate Division
Department: Biological And Medical Informatics Program
May the student choose the instructor for this course? No
Does enrollment in this course require instructor approval? No
Course Grading Convention: P/NP (Pass/Not Pass) or S/U (Satisfactory/Unsatisfactory)
Graduate Division course: Yes
Is this a web-based online course? No
Is this an Interprofessional Education (IPE) course? No
May students in the Graduate Division (i.e. pursuing Master or PhD) enroll in this course? Yes
Repeat course for credit? Yes
BIO MD INF 250 Research (4-8 Units) Fall, Winter, Spring, Summer
Instructor(s): Staff
Prerequisite(s): None
Restrictions: None
Activities: Lecture, Seminar, Clinical, Fieldwork, Independent Study, Project, Web work, Workshop, Practical Experience, Special Projects, Lab skills, Lab science, Conference, Discussion

In this course, students will work together with a primary research advisor to select a research question and design a project workplace that will be carried out by the student. Through this activity, the student will gain experience in research strategy, learn techniques associated with modern biomedical research, and practice how to interpret results. At the conclusion of the course, the student will present on their progress.

School: Graduate Division
Department: Biological And Medical Informatics Program
May the student choose the instructor for this course? Yes
Does enrollment in this course require instructor approval? Yes
Course Grading Convention: P/NP (Pass/Not Pass) or S/U (Satisfactory/Unsatisfactory)
Graduate Division course: Yes
Is this a web-based online course? Yes
Is this an Interprofessional Education (IPE) course? Yes
May students in the Graduate Division (i.e. pursuing Master or PhD) enroll in this course? Yes
Repeat course for credit? Yes