



"I think you should be more explicit here in step two."

BMI 551 / 651 BCBII: Statistical Methods in Computational Biology

Course Syllabus

WINTER 2016

COURSE INSTRUCTORS:

Shannon K. McWeeney, Ph.D.,

Professor, Division of Biostatistics, Department of Public Health & Preventive Medicine AND Division of Bioinformatics and Computational Biology, Department of Medical Informatics and Clinical Epidemiology Location: 14D72 Hatfield Mail code: CR-145 Phone: (503) 494-8347
E-mail: mcweeney@ohsu.edu
Office hours: By appointment

COURSE TIME AND LOCATION: Monday & Thursday 9-10:20 in CHH 3181 1B

CLASS MAILING LIST AND WEB PAGE: All communication and materials will be provided via the Course webpage on the Sakai system, OHSU's online course management system. For any technical questions or if you need help logging in, please contact the Sakai Help Desk.

Hours: Sakai Help Desk is available Mon – Fri, 8 am – 9 pm and weekends 12 pm – 5 pm, Pacific Time. The Help Desk is not available on OHSU Holidays.

Contact Information:

(Toll-free) 877-972-5249

(Web) <http://atech.ohsu.edu/help>

(Email) sakai@ohsu.edu

TEXTBOOKS: Required: Hastie, Tibshirani and Friedman. The Elements of Statistical Learning: Data Mining, Inference, and Prediction (2009) Second Edition

Recommended:

Hahne F, Huber W, Gentleman R Bioconductor Case Studies (Use R) (2008). 1st Edition.

Ewens WJ and GR Grant. Statistical Methods in Bioinformatics (2005) 2nd Edition

Notes: We will be supplementing the textbook with lecture handouts and articles throughout the quarter.

COURSE DESCRIPTION:

This course will be a problem-driven examination of the quantitative issues in computational biology. The course will provide students with the statistical fundamentals underlying the techniques covered. Topics will include applications involving Supervised and Unsupervised learning, MCMC Models, Maximum Likelihood, Hidden Markov Models, Bayesian Networks and Multiple Testing. Students will be evaluated on written assignments, a midterm, an analysis programming assignment and final data analytics project via Kaggle.

HOMEWORK: There will be weekly written homework assignments, generally assigned during class and due the following week.

METHODS OF EVALUATION: Students will be evaluated on written homework assignments, done individually, and an analytic challenge project. The course grade will be based on 40% Homework; 10% Short analysis programming project; 20% Midterm Examination; 30% Final – analytics

project submission via Kaggle.

Grades are assigned based on the following criteria:

A	93-100
A-	90-92.99
B+	87-89.99
B	83-86.99
B-	80-82.99
C+	77-79.99
C	73-76.99
C-	70-72.99
F	<70

Graduate Studies in the OHSU School of Medicine is committed to providing grades to students in a timely manner. Course instructors will provide students with information in writing at the beginning of each course that describes the grading policies and procedures including but not limited to evaluation criteria, expected time needed to grade individual student examinations and type of feedback they will provide.

Class grades are due to the Registrar by the Friday following the week of finals. However, on those occasions when a grade has not been submitted by the deadline, the following procedure shall be followed:

- 1) The Department¹ /Program Coordinator² will immediately contact the Instructor requesting the missing grade, with a copy to the Program Director and Registrar.
- 2) If the grade is still overdue by the end of next week, the Department¹ /Program Coordinator² will email the Department Chair directly, with a copy to the Instructor and Program Director requesting resolution of the missing grade.

3) If, after an additional week the grade is still outstanding, the student or Department¹ /Program Coordinator² may petition the Office of Graduate students for final resolution.

1 For courses that are run by a specific department.

2 For the conjoined courses (course number is preceded by CON_ that are run by Graduate Studies.

ACADEMIC INTEGRITY: Each student is responsible for following the OHSU guidelines for academic integrity. You may discuss the general concepts and principles behind an assignment with other students. In fact, you are encouraged to do this whenever possible, because it is often a valuable way to reinforce ideas, and to learn new perspectives. However, in doing homework assignments, each student is expected to develop, write up, and hand in an individual solution and, in doing so, develop a sufficient understanding of the problem and solution so as to be able to explain it adequately to the instructor. Under no circumstances should a student copy or consult the solution of another student, or copy a solution from any other source, including the Internet. In the case of course project submissions, one submission per group will be required, and should be the work solely of students in that group.

COPYRIGHT INFORMATION

Every reasonable effort has been made to protect the copyright requirements of materials used in this course. Class participants are warned not to copy, audio, or videotape in violation of copyright laws. Journal articles will be kept on reserve at the library or online for student access. Copyright law does allow for making one personal copy of each article from the original article. This limit also applies to electronic sources.

To comply with the fair use doctrine of the US copyright law, Sakai course sites close three weeks after grades are posted with the Registrar. Please be sure to download all course material you wish to keep before this time as you will have no further access to your courses.

DMICE COMMUNICATION POLICY

1. If the syllabus directs the student to contact the TA before contacting the instructor, the student should do so. Otherwise, the student should contact the instructor and allow 2 business days (not including weekends) for a response.
2. If the student does not receive a response from the instructor within 2 business days, s/he should contact the TA (if there is one). When contacting the TA s/he should cc the instructor and Diane Doctor at doctord@ohsu.edu.
3. If a student does not receive a response from the TA within 1 business day (not including weekends), s/he should contact Diane Doctor at doctord@ohsu.edu and cc the instructor and the TA.
4. If Diane does not reply within 1 business day (not including weekends), the student should contact Andrea Ilg at ilgan@ohsu.edu.
5. Students having difficulties with Sakai should contact the Sakai Help Desk at sakai@ohsu.edu or at (877) 972-5249. Sakai help is available M-F from 8am to 9 pm and weekends from Noon to 5pm. Do not contact the instructor.

SYLLABUS CHANGES AND RETENTION

This syllabus is not to be considered a contract between the student and the School of Medicine. It is recognized that changes may be made as the need arises. Students are responsible for keeping a copy of the course syllabus for their records.

STUDENT ACCESS

Our program is committed to all students achieving their

potential. If you have a disability or think you may have a disability (physical, learning, hearing, vision, psychological) which may need a reasonable accommodation please contact Student Access at (503) 494-0082 or e-mail at orchards@ohsu.edu to discuss your needs. You can also find more information at www.ohsu.edu/student-access. Because accommodations can take time to implement, it is important to have this discussion as soon as possible. All information regarding a student's disability is kept in accordance with relevant state and federal laws.