Bioinformatics 552B/652B
Research in Bioinformatics

Two Credit Hours
Spring 2014, Thursdays from 4:15 PM – 6:15 PM
BICC 123 & 124

Course Description: The Research in Bioinformatics course is designed to give students (Masters, Ph.D., and fellows) a foundation in general research approaches with specific application to bioinformatics and medical informatics. This is the second of a two-part course which will focus on developing the critical thinking and evaluation skills necessary to be successful in this field. The emphasis this term will be on executing an informatics project and preparing a Specific Aims page using the skills developed during the first part of the course.

Prerequisites: Acceptance into the DMICE bioinformatics track or instructor permission and completion of Bioinformatics 552A/652A.

Instructors:
Eilis Boudreau, M.D., Ph.D., boudreau@ohsu.edu
Deborah Woodcock, M.B.A. woodcocd@ohsu.edu
Shannon McWeeney, Ph.D. mcweeney@ohsu.edu
Office Hours: by appointment


Reading Material: Relevant literature from the fields of biomedical research, bioinformatics, and computer science.

COURSE GRADING POLICY:
This course is given for a letter grade. The final grade will be based on 100 points. The number of points assigned to each activity is as follows: 20 points for your project plan; 30 points for your Specific Aims page; 20 points for your AMIA project submission write-up (or equivalent if doing an alternate challenge); 20 points for your final project presentation; 10 points for your primary grant reviewer summary statement. All written assignments should be submitted through Sakai and grades for written assignments will be posted in Sakai two weeks after the assignment due date or completion of presentations (for assignments submitted late, grades will be posted two weeks after the assignment is submitted).

<table>
<thead>
<tr>
<th>Task</th>
<th># Points</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submit to Sakai Project Charter, Team Charter, Project Work Plan; Plan Updates (Weeks 4 and 8; see Sakai for details)</td>
<td>20</td>
<td>Thursday 4/7/16 (12 PM)</td>
</tr>
<tr>
<td>Email instructor a few sentences about topic for Specific Aims page</td>
<td>N/A</td>
<td>Thursday 4/7/16 (4 PM)</td>
</tr>
<tr>
<td>Post near-final draft of Specific Aims page to Sakai Forum section</td>
<td>N/A</td>
<td>Thursday 5/12/16 (4 PM)</td>
</tr>
<tr>
<td>Assignment</td>
<td>Points</td>
<td>Due Date</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>--------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Submit to Sakai your Final Specific Aims Page</td>
<td>30</td>
<td>Sunday 5/15/16 (4 PM)</td>
</tr>
<tr>
<td>Post to Forum section of Sakai your Final Specific Aims page &amp; your NIH Biosketch</td>
<td>N/A</td>
<td>Sunday 5/15/16 (4 PM)</td>
</tr>
<tr>
<td>Do primary grant review using your assigned SA page/NIH biosketch; come prepared to class ready to lead discussion on your assigned SA page</td>
<td>N/A</td>
<td>In-class Thursday 5/19/16 (you may not present until 5/26/16 but all reviewers must be prepared for possible review presentation by 5/19/16)</td>
</tr>
<tr>
<td>Submit to Sakai your Primary Reviewer Summary Statement</td>
<td>10</td>
<td>6 PM on the day after assigned in-class grant review completed (either Friday 5/20/16 or 5/27/16 at 6 PM)</td>
</tr>
<tr>
<td>Final Project Presentations (submit copy of your slides and link to site where the beta version of your project can be accessed)</td>
<td>20</td>
<td>In-class presentations Thursdays 6/2/16 &amp; 6/9/16 - Submit to Sakai copy of slides and link to beta version of your project by Thursday 6/2/16 (4 PM)</td>
</tr>
<tr>
<td>Final Project Write-Up</td>
<td>20</td>
<td>Thursday 6/9/16 (4 PM)</td>
</tr>
<tr>
<td>Final Class Grade</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**Late Submissions**

The assignments will be marked down by 1 point per day if you have not obtained prior permission to delay submission from the instructor. An assignment is considered late if submitted any time after the Sakai deadline. For example, if a written assignment is due at 4 PM and you submit it at 4:05 PM, you will lose 1 point. If the assignment still has not been submitted by the following day at 4 PM, you will lose another point. A one point loss will continue to occur for each day late until the assignment has been submitted.

**Class Participation**

While you will have some lectures during the term, a significant amount of class time is devoted to interactive in-class exercises. Therefore, it is very important that you come to all class sessions on time. If for some reason you must miss a class, please let the instructor know in advance (or in the case of an emergency as soon as possible after the class is missed). In these cases, you may be given a make-up exercise if appropriate to do on your own. Repeated tardiness to class may also result in the loss of 1 point on your final grade for each class session for which you are late.

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 Department\(^1\) /Program Coordinator\(^2\) 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 Department\(^1\) /Program Coordinator\(^2\) 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 Department\(^1\) /Program Coordinator\(^2\) 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.

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 10-pm and weekends from Noon to 5pm. Do not contact the instructor.
STUDENT ACCESS:
OHSU is committed to providing equal access to qualified students who experience a disability in compliance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA) of 1990, and the ADA Amendments Act (ADA-AA) of 2008. If you have a disability or think you may have a disability (physical, sensory, chronic health, psychological or learning) please contact the Office for Student Access at (503) 494-0082 or studentaccess@ohsu.edu to discuss eligibility for academic accommodations. Information is also available at www.ohsu.edu/student-access. Because accommodations may take time to implement and cannot be applied retroactively, 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.

ACADEMIC HONESTY:
Course participants are expected to maintain academic honesty in their course work. Participants should refrain from seeking past published solutions to any assignments. Literature and resources (including Internet resources) employed in fulfilling assignments must be cited. See http://www.ohsu.edu/xd/education/library/research-assistance/plagiarism.cfm?WT_rank=1# for information on code of conduct for OHSU and http://www.ohsu.edu/xd/education/teaching-and-learning-center/for-students/index.cfm for more information on citing sources and recognizing plagiarism.

In an effort to uphold the principles and practice of academic honesty, faculty members at OHSU may use originality checking systems such as Turnitin to compare a student’s submitted work against multiple sources.

To protect student privacy in this process, it will be necessary to remove all personal information, i.e. student name, email address, student u-number, or any other personal information, from documents BEFORE submission.

NOTE:
This syllabus and class schedule is subject to changes by the instructors. Changes will be made with as much advance notice as possible.

COURSE COORDINATION:
The course Website will be the central location for the distribution of course materials and assignment listing. 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.
Contact Information:
(Toll-free) 877-972-5249
(Web) http://atech.ohsu.edu/help
(Email) sakai@ohsu.edu
COURSE OBJECTIVES:

• If presented with a research idea, be able to identify informatics issues relevant to the problem and be able to develop and articulate appropriate approaches to finding solutions to these problems.
• Critically develop a research idea (hypothesis), and complete a Specific Aims page which outlines an approach to testing this hypothesis.
• Develop and execute an informatics project plan and complete a project for a design challenge.
• Understand how a grant proposal is prepared and evaluated.

COURSE OUTLINE:

Week 1 (3/31/16; room 123/124)
- Project management, parts 4 and 5
- Project kick-off, work in small groups

Week 1 Assignments:
(1) Convene your project team and develop a project charter, team charter, and high-level work plan for your project. Your plan should include deliverables, key milestones, and as much detail as you can provide, based on your initial understanding of the project. The plan should also clearly identify how each project team member will individually contribute to the completion of the project. You'll create these documents as a group, but each team member should submit a copy of the files in Sakai by Thursday 4/7/16 at noon. All members of the team should review and agree upon these files prior to submission.
(2) Identify a topic for your specific aims page. This can be written on a topic related to your project or another area of your choosing. Some students may choose to do it on a topic related to their research. Send a brief email with a few sentences outlining your chosen topic to the instructor (boudreau@ohsu.edu) by Thursday 4/7/16 at 4 PM.

Week 2 (4/7/16; room 124)
- Introduction to the Institutional Research Board (IRB) and Institutional Animal Care and Use Committee (IACUC)
- Introduction to the Specific Aims page
- 5 min. project updates

Week 2 Assignment:
(1) Begin work on your projects in accordance with your project plan.
(2) Continue work on Specific Aims page.

Week 3 (4/14/16; room 124)
Guest Lecturer Dr. Ron Hoffman, Introduction to Human Factors

Week 3 Assignment:
(1) Continue work on projects.
Week 4 (4/21/16; room 123/124):
- Introduction to grant writing.
- 5 min. project updates

Week 4 Assignment:
(1) Continue work on projects. Submit an updated project work plan to Sakai by **Thursday, April 28 at 4 PM**. This plan should be more detailed than Week 1’s draft plan, and it should indicate which tasks and deliverables are complete.
(2) Continue work on Specific Aims page.

Week 5 (4/28/16; room 124):
- The NIH Grant Review Process (Shannon McWeeney)

Week 5 Assignment:
(1) Continue work on projects.
(2) Continue work on Specific Aims page.

Week 6 (5/5/16; room 123):
- Introduction to Patent Law (guest speaker patent lawyer Robert Richardson)

Week 6 Assignment:
(1) Continue work on projects.
(2) Continue work on Specific Aims page.

Week 7 (5/12/16; room 123/124):
- Specific Aims page review, in-class exercise

Week 7 Assignment:
(1) Continue work on projects.
(2) You need to submit a copy of your near final draft Specific Aims page to the Forums section on Sakai by **Thursday 5/12/16 at 4 PM**. You will be using this draft for the in-class exercise on 5/12/16. Based on the feedback you get in class, you will be able to make corrections and then submit your final Specific Aims page to Sakai by **Sunday 5/15/16 at 4 PM**. In addition to submitting to Sakai, please also submit a copy of your FINAL Specific Aims page plus NIH biosketch to Sakai on the Forum’s page for the class by **Sunday 5/15/16 at 4 PM**. Each class member will be assigned to be the primary reviewer for one Specific Aims page for our Mock Grant reviews. You will be able to download your assigned Specific Aims page and NIH biosketch from the Forum’s section of Sakai. Reviewer assignments will be made in the beginning of May.

Week 8 (5/19/16; room 123/124):
- Mock Grant Reviews.
Week 8 Assignment:
(1) Continue work on projects. Submit your team’s final project work plan to Sakai by Thursday, May 26 at 4 PM. This plan should show additional detail as well as significant completion of tasks and deliverables.
(2) Prepare draft project presentations for rehearsal May 26 (see Week 9 assignment for details).
(3) If you were a primary reviewer for a grant reviewed in-class, then your primary reviewer summary statement is due for submission to Sakai by Friday 5/20/16 at 6 PM.

Week 9 (5/26/16; room 124):
- Mock Grant Reviews continue.
- Project presentation rehearsals with Deb Woodcock.

Week 9 Assignment:
(1) Continue work on projects.
(2) If you were a primary reviewer for a grant reviewed in-class, then your primary reviewer summary statement is due for submission to Sakai by Friday 5/27/16 at 6 PM.
(3) Prepare for Project Presentations, which will be rehearsed on 5/26/16 and presented starting 6/2/16. Each group will do a project presentation. The focus should be on the problem/gap your project addressed and what your solution was. Each member of the team is expected to do part of the presentation. Each member of the team may use 1-slide or graphic, with the total time for the group presentation being 6 min. You must demo a working version of your project during the presentation. You will be graded on the clarity of your presentation and slide, demonstrating that you at least have a working beta version of your product, how well you stick to the time-limit, and how well your presentations coordinate with your team members’ presentations. In general, each team member should do an equal part of the presentation. Each group project presentation will be videoed and we will play back the video in class immediately after each group presentation. This exercise is designed so that you can get constructive feedback on your presentations.

Week 10 (6/2/16; room 123/124):
- Spring Project Presentations.

Week 10 Assignment:
(1) Final project write-ups will be due on Thursday 6/9/16 at 4 PM. Each team member will submit a copy of their group project write-up (the document that was submitted as part of the paperwork for the AMIA Student Design Challenge). In addition to the write-up submitted to AMIA, each member of the group should add 2-3 paragraphs outlining their specific contributions to the group project. These statements should be reviewed by all members of the group prior to submission (everyone will submit an identical document to Sakai).
Week 11 (6/9/16; room 123):
  - Spring Project presentations continued.