Instructor Contact

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- **Office Hours**:
  - 5pm-6pm Mondays (Chen)
  - 5pm-6pm Mondays (Xiaowen)
  - after class meeting As needed
- **Classroom**:
  - IT 395

Meeting Time

- **Session I: CCBB seminar by visiting speakers**
  - Monday, 11:00am-12pm (CCBB, HITS building 1st floor conference room)

- **Session II: SOIC bioinformatics seminar by invited speakers**
  - Fridays, 10:00am-11:15pm (IT 252) whenever there is an Informatics seminar at the School
Text/Reading Material

Reading materials are usually assigned approximately one week ahead of time. They are given to prepare students for upcoming seminars. The reading material may be derived from unpublished reports, paper publications, and web sites related to upcoming seminar topics.

Course Description

In this course we will survey current and broad range of research topics in bioinformatics in a seminar format. It is a transitional course from structured lecture-based bioinformatics learning into un-structured research-based learning for PhD/MS bioinformatics students who have completed at least one year of graduate program of curricular studies. The topics that the course covers are wide-ranged, ranging from biological data management, biological information retrieval and text mining, biological data mining, high-performance bio-computing, comparative genomics, functional genomics, proteomics, network biology, to systems biology. After successfully completing the course, students are expected to learn the following:

• Why are seminars important to the learning process of bioinformatics students and researchers?
• How to prepare for a seminar topic to maximize chances of learning?
• How to participate and critically judge the quality of a bioinformatics seminar, given by peers or active researchers in the field?
• How to research a topic from literature with the goal of ultimately disseminating knowledge in bioinformatics seminars?
• What presentation techniques can one learn to maximize the chance of successfully giving a seminar talk?
• How to integrate seminar-based learning into future bioinformatics research studies?

Course Expectation

The instruction style will be unstructured to suit the style of transitioning from lectured learning format to supervised research learning format. However, everyone is expected to fully participate in all the scheduled seminars and turn in reports by due time. Students are encouraged to explore new topics in bioinformatics unrelated to their current research focus.
Grading

A total of 100 points are available for distribution into the following tabulated main scoring subject areas:

<table>
<thead>
<tr>
<th>Scoring Subject Area</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>General In-class discussion/participation</td>
<td>20</td>
</tr>
<tr>
<td>Preparatory Reports (2 pts for each submitted report on time)</td>
<td>20</td>
</tr>
<tr>
<td>Paper Critiques (5 pts for each submitted critique)</td>
<td>30</td>
</tr>
<tr>
<td>Seminar Presentation (7 pts for each presentation)</td>
<td>14</td>
</tr>
<tr>
<td>Subject Area Paper Collection Editorial (10) + Presentation (6)</td>
<td>16</td>
</tr>
</tbody>
</table>

In each category, it is possible for highly accomplished students to gain bonus points. The final grades will be based on summed points, adjusted by the whole class performance and bonus points awarded during the semester for excellent participations. The points will be converted into grades by *generally* following the guideline below:

<table>
<thead>
<tr>
<th>Grade Category</th>
<th>Grade</th>
<th>Score Requirement</th>
<th>Relative Class Rank Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outstanding</td>
<td>A+</td>
<td>&gt;93</td>
<td>Top 10%</td>
</tr>
<tr>
<td>Excellent</td>
<td>A</td>
<td>[87, 93]</td>
<td>Top 25%</td>
</tr>
<tr>
<td>Very Good</td>
<td>A-</td>
<td>[80, 87]</td>
<td>Top 50%</td>
</tr>
<tr>
<td>Good</td>
<td>B+</td>
<td>[73, 79]</td>
<td>--</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>B</td>
<td>[67, 72]</td>
<td>--</td>
</tr>
<tr>
<td>Reasonable</td>
<td>B-</td>
<td>[60, 66]</td>
<td>--</td>
</tr>
<tr>
<td>Fail</td>
<td>F</td>
<td>0-59</td>
<td>-</td>
</tr>
</tbody>
</table>

GRADING FOR SUBMITTED REPORTS

Submission of Pre-seminar Preparation Reports: 2-page long. Generally documented but not graded thoroughly.

- You should submit as many reports (no less than 10) as you want. These reports are documented but are generally
- Each report, unless it’s poorly formatted and too short/irrelevant, generally will be given 2 points.
• An extremely poorly prepared reports or a late submission may get 0 or 1 points.
• You may continue to accrue points up to 10 additional points as a maximum in this category.
• You can also get participation score additionally by compiling discussion notes into reports to be shared with the class monitor and the class at the end. (Graded by the class monitor)

Submission of Post-seminar Paper Critiques: 3-5-page long. Graded. Need to provide context of subject area.

• Submit as many as you want but only 6 will be graded. You will be graded for the 6 critiques.
• Each critique will be for 5 points each

Due Time: Every week at 11:59pm Sunday before class for pre-seminar reports, and Every Saturday 11:59pm after class for post-seminar critiques.

Late Submission Policy: Your work submitted after the deadline but within 48 hours of the deadline will be accepted but will be penalized up to 50%. No submission will be accepted beyond 48 hours of the deadline.

Report grading: Grading will be done based on the following guidelines:

• Efforts/work reflected in the general presentation of the writing
• Structure and writing clarity
• Critical review of the literature that leads to new opinions of the topic
• Relevancy of the report to the seminar topic

GRADING CRITERIA FOR SEMINAR PRESENTATION

Presentation: You will be evaluated for primarily your level of preparation and presentation style. Content, which includes critical review of the relevant literature, is secondary. You are expected to address questions in confidence through your investigation before the seminar presentation. Perfection is not the goal. Learning towards mastery of presentation skills by following lessons learned along the course is valued significantly.

Final Presentation: You will be evaluated based on everything learned in the class about how to prepare for and deliver a successful bioinformatics research seminar. Your seminar should be satisfactory in content, style, and ability to answer questions from the audience. The research, either your own or surveyed from the literature, should be solid and withstand critical feedback from peer
researchers. The research should reflect maturity of individuals who are ready to engage in supervised research in chosen bioinformatics topic areas.

GRADING CRITERIA FOR SUBJECT AREA PAPER EDITORIAL

Your will be asked to build a paper collection on a chosen area of bioinformatics, based on your declared subject topic, to be approved by the instructor. You need to carefully select approximately 25-50 papers, based on your research conducted during this semester. All papers should be listed on the course web site, with proper URL documented. The research studies may or may not be drawn from your current supervised research topic. However, the research topic should not be overlapping with other members in the class, and should be approved in advance by the instructor. It should reflect new a growing area within bioinformatics.

You need to write an editorial article, thoroughly reviewing progress in the subject area, and give proper critiques why certain paper deserves to be in the library, and what contribution it has made to the field. Even though this seminar course doesn’t emphasize how to write scientific reports, editorial technical writing is recognized as an area deserving dedicated learning by itself. Generally, a good final editorial report should have the following minimal ingredients:

- **Introduce the topic well.** What subject area are you reviewing? Why is the review important? What are the challenges and opportunities?
- **Introduce background knowledge.** What are the key concepts used in your research topic? What other researchers have done in similar areas? What are the pros and cons of these existing studies? How do you try to distinguish your work? What are your contributions? Are they significant enough to represent innovation in bioinformatics?
- **Describe your editorial paper selection methods.** What are the techniques, software tools, databases, etc to be used for this selection process? How are you planning to get them? What is the workflow that make them work together? Do you expect any problems and if so, how do you plan to solve them?
- **Describe your proposed goals.** What impact do you expect to make with your selection?
- **Describe a way to evaluate your selection.** Do you plan to conduct third-party evaluations for your work? What’s their feedback? Have you incorporated or do you plan to incorporate their feedback?
ACADEMIC INTEGRITY

Academic integrity is the pursuit of scholarly activity free from fraud and deception, and is the educational objective of this institution. Academic dishonesty includes, but is not limited to cheating, plagiarism, fabrication of information or citations, facilitating acts of academic dishonesty by others, unauthorized possession of examinations, submitting work of another person, or work previously used without informing the instructor, or tampering with the academic work of other students. Any violation of academic integrity will be thoroughly investigated, and where warranted, administrative action will be taken. Plagiarism has become dishearteningly common in universities.

For more information on plagiarism please go to http://www.indiana.edu/~wts/wts/plagiarism.html.

The following table lists some examples of Academic Integrity issues.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Description (by example)</th>
<th>Possible Consequences or Actions</th>
</tr>
</thead>
</table>
| Intentional Plagiarism or Cheating | Turning in work significantly similar to those written by someone else, or, Purposefully including long passages of someone else's writing in one's own essay, without using any form of in-text documentation | * lowered or failing grade on portfolio or course depending on history and severity of offense and perpetrator  
* need to redo the assignment  
* reported to the School |
| Unintentional Plagiarism       | Using passages from readings without any in-text documentation and without intent to deceive | * instructor intervention on a draft or early revision  
* lowered or failing grade on portfolio or course depending on history and severity of offense and perpetrator  
* need to revise  
* decreased credibility with readers |

WARNING: ANY Academic Misconduct will be treated very seriously. The work will be scored 0 pts and the incident may be reported to the school. The student may also get a failing grade. So, please do not violate the basic rules!!!