

## **GENETICS 677: Genomic & Proteomic Analysis Spring 2009**

**Instructor:** Dr. Ahna Skop

### **3 Credits**

**Tues: 3:30-4:20, Genetics Rm 1408**

**Thurs: 3:30pm-5:00pm, Genetics Rm 1240 (BMC Computer Cluster)**

**Papers:** All papers will be posted on the course web site as PDFs: <http://gen677.weebly.com/papers-to-download.html>

**Class Structure:** The aims of this section of the course are 1) to learn to read and evaluate papers from the primary literature in the area of proteomics, 2) to understand modern experimental methods used to ask fundamental biological questions, and 3) to practice synthesizing, presenting and critiquing original research. In the course of reading, evaluating and presenting papers, we will also learn about the latest research in the selected areas of genomics, proteomics and bioinformatics.

Each lecture class (usually Tuesdays) will be conducted as a “journal club” (\*except where noted on the syllabus). One or two students will present 1-2 papers on a particular topic. Each presentation should last approximately one hour and give background information needed to understand each paper (a review paper will be supplied), present the results figure-by-figure, and include a discussion and evaluation of the results. Everyone is expected to read the reviews and original papers assigned so that they can participate in the discussion. One question should be submitted to our online blog (<http://gen677.weebly.com/blog.html>) no later than 12:00pm each presentation day from each student (except the speaker(s)) in the class about the paper or topic. This question should be asked in class.

Each lab class (usually Thursdays) will be conducted in the 1240 Biotech Media Center (BMC) Computer Cluster. For most of the semester you will be working on one aspect of your semester long project each week during lab class time. I encourage you to work in a group both in class and outside of class. It will be beneficial to your research.

**Grading:** 30% from presentations, 40% from projects and 20% from class participation, 10% questions. Everyone has the potential to get an “A” in this course. It is impossible to fail unless you don’t do any work or participate. There will be no curve.

**Computer:** I will have my MAC computer available so that you may load your Powerpoint or Keynote talks on my computer. If you want to use your own computer, make sure that everyone in your group’s visual aids are loaded on one computer to make things go more smoothly in class. I will be there early to help you set up your presentation.

**Meeting with Ahna:** Each student/group has the option to meet with Ahna prior to their presentation to go over their presentation and clear up any questions if you want but you don’t have to. You should have read all papers and have an outline of your presentation prepared before this meeting. I will send an email with your performance, grade and suggestions for improving your talk soon afterwards. In addition, if you prefer getting more feedback in person let me know, I’d be happy to meet with you anytime. Please email me to set up an appointment to meet.

### **Teaching a “GREEN” course:**

I am trying to make this course as “GREEN” as I can. Very little paper will be wasted on projects and coursework throughout the semester. Of course, the computers use electricity to work, but I am trying to keep the paper waste to a minimum. Projects and weekly questions will be submitted in an online format to be graded, reducing impact on our environment. Shut off your computers if when you are done! Please recycle paper when are done with it!

### **Being Creative:**

You were born with a tremendous amount of creative possibilities! I encourage you to be as creative and innovative as you can be in this course, both with your project and in your class presentations. Don’t be afraid to take risks! Each one of you is unique and this alone brings a lot to class, your project and science.

## **Guidelines:**

**1. Presentations (30% of grade):** Presenting a paper involves three aspects. **First**, you should give some background that will help the other students understand the paper and put the paper in the context of other research in this area. You should focus on introducing background that relates to the paper. If you are presenting an overview of a topic you should give the basic overview of the technique, how it is used and some examples of how it can be used to tackle questions someone might have about their genes, proteins or genomes, etc. In some cases, it is helpful to review previous results by the same authors that lead to the paper you are presenting. **Second**, you should go through the paper figure by figure (you do not have to all of them but as you see fit). Your role here is to point out what the purpose for each experiment is and to assist the class in evaluating the data. To properly evaluate the data you must understand how the experiment was done and look up any techniques you are unfamiliar with. **Third**, you should facilitate a discussion with your fellow students. Ideally, other students will interject their opinions of the experiments as you present each one. You can encourage participation by pausing to ask specific questions (“I thought that a control was needed in this experiment, does anyone agree, and if so what control is needed?”). You should also summarize the author’s conclusions and encourage a discussion of these conclusions and future lines of inquiry suggested by these studies.

### **Grading of Presentations:**

- 30% - quality of background given – does it set up the paper well and include discussion of any background data or techniques needed to understand the paper?
- 35% - presentation of the figures
- 15% - role as discussion leader
- 20% - summary and discussion of conclusions/future directions

**Peer reviews:** Peer feedback is important in science. Your fellow classmates will evaluate your presentations throughout the semester. An evaluation form will be handed out. I will collect the evaluations and read them over and give them back to you the next class time.

**2. Semester long projects (40%):** Web-based resources are heavily used in genomics and proteomics analysis. Therefore it is good to learn how to create web pages. Websites will be created using <http://www.weebly.com>. We will go over in class how to set up your pages for your semester long projects. Your web assignments will be submitted online only. Please send me your link to your page when you set it up initially. These will be posted on the course website. See deadlines for particular sections on the project schedule.

### **Grading of Websites & Projects**

- 30% - quality of background given & reviews of popular press and scientific articles
- 30% - quality & presentation of the results, methods & references (i.e. your data) on your project website
- 20% - quality & presentation of findings (to class at end of semester)
- 15% - summary and discussion of conclusions/future directions
- 5% - originality & aesthetics of overall project & website

**3. Class Participation (20% of grade):** Learning to participate in a meaningful discussion of scientific data is a major goal of this course. You can only participate if you have read all assigned papers and come to class prepared. During the presentation, it is OK to interrupt to ask a question or make a comment. You should not save all your questions/comments until the end. Active participation by everyone makes for a lively and interesting discussion. Your opinion is important, and you are encouraged to express it. **NOTE: You are exempt from 2 classes** throughout the semester, any more you lose a letter grade. If you are sick or have a family emergency, please email ahead of time that you will not be able to make it to class that day.

**4. Questions (10% of grade):** For each class presentation, everyone will be expected to post 1 question prior to class (about the paper, technique or topic) on our class blog (<http://gen677.weebly.com/blog.html>). This should be one or more questions about what you are unclear about from reading that you want to ask in class. If you are giving the paper, you do not need to submit a question. **NOTE: You are exempt from submitting 2 questions** during the semester. Any more than that you lose a letter grade. Each question will be worth 10pts. The question should be submitted no later than 12:00pm the day of the presentation. **\*NOTE:** The speaker(s) should read the questions on the blog after 12 noon and be ready to answer them in class. I will surely help you out if you don’t know.

## Academic Misconduct:

Throughout the course of the semester you will be obtaining the majority of your research from web-based sites and material. I know how easy it might seem to take what is on a website. But think twice, I am quite computer savvy and I will catch you.

UW-Madison's Guidelines for Academic Misconduct:

<http://www.wisc.edu/students/saja/misconduct/UWSI4.html>

How to avoid plagiarizing (UW-Madison Writing Center):

[http://www.wisc.edu/writing/Handbook/QPA\\_plagiarism.html](http://www.wisc.edu/writing/Handbook/QPA_plagiarism.html)

### Definition of Academic Misconduct

(taken from <http://www.wisc.edu/students/saja/misconduct/UWSI4.html>)

Academic honesty requires that the course work (drafts, reports, examinations, papers) a student presents to an instructor honestly and accurately indicates the student's own academic efforts.

UWS 14 is the chapter of the University of Wisconsin System Administrative code that regulates academic misconduct. UW-Madison implements the rules defined in UWS 14 through our own "Student Academic Misconduct Campus Procedures." UWS 14.03 defines academic misconduct as follows:

Academic misconduct is an act in which a student:

- \* seeks to claim credit for the work or efforts of another without authorization or citation;
- \* uses unauthorized materials or fabricated data in any academic exercise;
- \* forges or falsifies academic documents or records;
- \* intentionally impedes or damages the academic work of others;
- \* engages in conduct aimed at making false representation of a student's academic performance;
- \* assists other students in any of these acts.

Examples include but are not limited to: cutting and pasting text from the web without quotation marks or proper citation; paraphrasing from the web without crediting the source; using notes or a programmable calculator in an exam when such use is not allowed; using another person's ideas, words, or research and presenting it as one's own by not properly crediting the originator; stealing examinations or course materials; changing or creating data in a lab experiment; altering a transcript; signing another person's name to an attendance sheet; hiding a book knowing that another student needs it to prepare an assignment; collaboration that is contrary to the stated rules of the course, or tampering with a lab experiment or computer program of another student.

### Plagiarism

(taken from <http://www.wisc.edu/students/saja/misconduct/UWSI4.html>)

Plagiarism means presenting the words or ideas of others without giving credit. You should know the principles of plagiarism and the correct rules for citing sources. In general, if your paper implies that you are the originator of words or ideas, they must in fact be your own.

If you use someone else's exact words, they should be enclosed in quotation marks with the exact source listed. You may put someone else's idea in your own words as long as you indicate whose idea it was (for example, "As Jane Smith points out, . . ."). If you are unsure about the proper ways to give credit to sources, ask your instructor or consult the Writing Center at 6171 Helen C. White Hall (phone: 608/263-1992, e-mail: [writing@wisc.edu](mailto:writing@wisc.edu)) for a copy of their handout "Acknowledging, Paraphrasing, and Quoting Sources," which you can download here.

## Citation Components and Examples

(adapted from: <http://www.library.ualberta.ca/guides/citation/index.cfm>)

As more information becomes available on the Internet and in electronic form, some standardization of citation formats is necessary in order to provide accurate references to authorship and to facilitate access to the sources. The style authorities have various approaches to the citation of electronic sources and, in general, there is little agreement among them. However, there are two principles emerging to which all authorities appear to adhere: 1) provide as much information as possible concerning the authorship and the availability of the sources, and 2) if there is no specific guideline for a particular electronic source, draw an analogy to a relevant print source guideline.

### Citation of Electronic Resources based on APA Style

Please note that on June 2007, APA published a new style guide for electronic references, which replaced section 4.16 of the fifth edition of the APA manual (2001, pp.268-281). You may also consult the APA's website at <http://www.apastyle.org/elecmedia.html>.

Important changes include:

- \* **Issue number:** Always include journal issue number if available, regardless of whether the journal is paginated separately by issue or continuously by volume.
- \* **Retrieval date:** Include retrieval date if the cited content is likely to be changed or updated. No retrieval date is necessary if the materials are the final version, such as a journal article or book.
- \* **Use DOI (if available) instead of URL.** Digital Object Identifier (DOI) is a unique identifier used to provide a persistent link to the location of the content on the Internet. The DOI resolver is provided by CrossRef.org, a registration agency for scholarly and professional publications.
- \* Database name is no longer necessary unless the content is of limited circulation delivered by electronic databases (do not include the database URL)

### Citation Examples (\* most used ones are in yellow)

#### **A Journal Article with DOI**

Marsh, H. W., Trautwein, U., Lüdtke, O., Baumert, J., & Köller, O. (2007).  
The big-fish-little-pond effect: Persistent negative effects of selective  
high schools on self-concept after graduation. *American Educational  
Research Journal*, 44(3), 631. doi: 10.3102/0002831207306728

#### **A Journal Article with no DOI**

Schrader, A. (1999). Internet Censorship: Issues for teacher-librarian. *Teacher  
Librarian*, 26(5). Retrieved from:  
<http://proquest.umi.com/pqdlink?did=42031752&sid=1&Fmt=2&clientId=12301&RQT=309&VName=PQD>

*Note: Do not insert a hyphen to break a URL across line, and do not add a period after the URL.*

If you have three to five authors:

Henri, J., Hay, L., & Oberg, D. (2002). An international study on principal influence and information services in schools: Synergy in theme and methods. *School Libraries Worldwide*, 8(1), 49. Retrieved from:  
<http://proquest.umi.com/pqdlink?did=145956141&sid=2&Fmt=1&clientId=12301&RQT=309&VName=PQD>

*Note: APA (p.227) indicates that in electronic sources, page numbers are often not relevant.*

#### **A Magazine Article**

Alexandra Penn (2006, November). Raising the Alert on Cyber Bullying.  
*Teach*, 17-18. Retrieved from:

<http://proquest.umi.com/pqdlink?did=1226114671&sid=5&Fmt=2&clientId=12301&RQT=309&VName=PQD>

#### **An Abstract**

Andison, C. A. (1998). Learning disabilities and peer victimization in schools.  
[Abstract]. Retrieved from UMI ProQuest Digital Dissertation  
database. (AAT MQ37470).

**An Internet Journal Article with No Print Equivalent**

Foster, S. K., Paulk, A., & Dastoor, B. R. (1999). Can we really teach test-taking skills? *New Horizons in Adult Education*, 13(1). Retrieved February 7, 2000, from <http://www.nova.edu/~aed/newhorizons.html>

**An Online Full-text Dissertation**

Branch, J. L. (2000). Information-seeking processes of junior high students: A case study of CD-ROM encyclopedia use (Doctoral dissertation, University of Alberta, 2000). ProQuest Digital Dissertations (AAT NQ59566)

**An E-Book**

Polette, N. J. (2000). *Gifted books, gifted readers: Literature activities to excite young minds*. Englewood, Co: Libraries Unlimited. Retrieved from netLibrary database.

**A Newspaper Article**

Avery, B. (2000, February 9). Oil Prices likely to remain high: Non-OPEC suppliers unable to challenge cartel. *The Edmonton Journal*. Retrieved from <http://www.edmontonjournal.com/>

**Online encyclopedia** (or Wikipedia---\***Note it's not a good idea to take stuff from here**)

Adamski, B. K. (n.d.). Lacrosse. In *Canadian Encyclopedia Online*. Retrieved September 15, 2006, from <http://www.thecanadianencyclopedia.com/index.cfm?PgNm=TCE&Params=AISEC888940>

**A Web Document**

American Psychological Association. (2001). Electronic references. Retrieved November 1, 2001, from <http://www.apastyle.org/elecref.html>

**A Web Site**

No reference entry is needed; give the URL of the site in text. For example, 2Learn is a very useful Web site for teachers <http://www.2Learn.ca/mapset/mapset.html>

**E-Mail**

Cite e-mail communication in text only. No reference entry is needed. For example, J. Tong (personal communication, February 9, 2000)

**Illustrations**

To provide full citation of illustrations, include a note at the bottom of the reprinted work (or in the caption) giving credit to the original author and to the copyright holder. Although APA does not include specific guidelines regarding images from websites, here is a suggestion drawn from an analogy to printed work. For example, to provide full bibliographic citation to a copyrighted photograph obtained from the Washington State University website, include a note at the bottom of the photograph:

**Example:** From Washington State University, Pullman, University Recreation. (2004). Men's Ice Hockey [Photograph]. Retrieved from <http://urec.wsu.edu/photos/> Copyright 2002 by Board of Regents, Washington State University.

**Genetics 677 Honor Code**

In order to participate in Genetics 677 you must agree to the following standards by signing your name below:

1. I will research and report data taken from web-based databases and resources honestly and accurately. Under no circumstances will I fabricate data or change data to fit what I think it should be.
2. All work that I will submit under my name will be my own. I will not copy or paraphrase from any website or student in the course (including previous students or other students in other courses online). I will list the names of students with whom I worked with (if applicable for certain parts of your project).
3. I will not allow another student to submit assignments for me.
4. I will strive to produce a first author web-based project that is honest and true to my own semester research.
5. I will be proud to publish my work on our course website as my own.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

*Please sign and give back to me at the next class.*