Chemistry 356
Molecular Basis of Disease
Spring 2016
MW at 1pm
Room 300, School of Science and Math Building

Instructor:
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Office Hours:
TR 10:30-11:30 or by appointment

Class Materials:
All reading for this course will be from the literature and posted on Oaks

Topics:
Antibiotic Resistance
Diabetes
Alzheimers
Obesity
Cardiovascular Disease
Cancer

Design of Course:
Most modules will be discussed for two weeks. Either I (or possibly a guest speaker) will introduce the topic in the first two sessions. For those sessions, students will be responsible for reading an assigned review article(s) on the topic prior to attending the introductory lectures. When possible, we will try to supplement these lectures with a guest lecture or a video presentation on the topic. The following week, students will present assigned research articles on the topics. All students will be responsible for reading the research articles PRIOR to coming to class.

Evaluation of the Course:
Oral presentations of a journal article: 39%
Article Analysis 16%
Peer Review 5%
Deportment 5%
Discussion Leaders 5%
Midterm: 15%
Final Exam: 15%

Exams: We will have a mid-term and a final exam, each counting 15% of your grade. The mid-term will cover the first three topics and the final will cover the last topics (and is therefore not cumulative). It will primarily be multiple choice and most questions will be drawn from my lectures and the assigned review article reading.
Final Exam: Wednesday, May 6, 12-3 pm

Learning Outcomes:

- To develop an understanding of biological pathways and mechanisms that are faulty in selected diseases
- To illustrate how scientific knowledge is constructed by using examples from the medical and scientific literature
- To evaluate how biological and chemical tools can be applied to the study of disease
- To develop oral presentation skills appropriate for a professional scientist.

1) Oral Presentations (39%)
Each student will present an article three times to the class with a partner. The entire presentation should last ~20 minutes. The presentation itself should be done in Powerpoint. Students are responsible for making sure that their presentation will load onto the computer in our classroom. This means you need to check it prior to the class when you are presenting. When presenting an article, it may be necessary for you to do outside reading in order to adequately explain the article to the class. For example, if your article uses a technique like MALDI, you would want to do some background reading on the technique to explain what it does. You don’t have to be an expert, but you want to be knowledgeable about your article. Each figure in the paper should be presented and you should explain to the class how this figure contributes to the authors’ arguments. You are relaying to the class the authors’ story/argument. You are encouraged to find and explain holes in the authors’ argument, but at a minimum you should have read the paper enough and looked up enough background to explain their experimental logic. Since two people are presenting each article, a good division of labor is to have one person present the introduction and materials/methods and the other person to present the results and discussion.

2) Article Analysis (16%): Each student will pick one article that is being presented to analyze on weeks where there is a presentation. If you are presenting or are the discussion leader that week for a particular article, you will obviously be selecting your assigned article to analyze. These should be handed in on Oaks by 5pm the day the article is being presented. You should have 8 article analyses by the end of the class.

3) Deportment: attentiveness, respect, and attitude (5%): It is always a nerve-wracking experience to make oral presentations. I expect you to be courteous to your classmates and to me. I expect you to act like you are interested in the material, even if you are not. One way to show interest is to ask thoughtful questions and to participate in the discussion. If you do these things, you will receive all of the points for this area of participation. If you text, look asleep, giggle or chat, you will not be getting these points. I do not want to see any cell phones out during this class.
4) **Discussion leaders (5%)**: Each paper will have two presenters and two discussion leaders. Your job as discussion leader is to facilitate the discussion after the presentation by having questions ready to ask the presenters. The goal is not to grill the presenters but to have a discussion WITH the class. You will be a discussion leader 3 times.

5) **Peer review reports (5%)**: All students who are not presenting will serve as presentation reviewers. The presenters will get your comments and ratings after the fact, but in an anonymous form. YOU will be graded on your attentiveness to providing constructive comments to the presenters. Rude or hurtful comments will not be tolerated, so put some thought into how you word them. Please return the forms to me at the conclusion of class. You should have 12 peer reviews by the end of the class.

6) **Midterm (15%)**: The midterm will focus on information in PRG’s lectures. It will include some multiple choice and some short answer. It will cover the first three disease topics.

7) **Final Exam (15%)**: The final will focus on information in PRG’s lectures. It will include some multiple choice, some short answer, and some critical analysis. It will cover the last three disease topics, but will also ask for retrospection in the course (i.e. connections between topics). The final is Friday, April 29 from 4-7pm.
Tips for Oral Presentations (adapted from the URCA website)

- Know what was done AND why it was done---present each figure in the paper with a focus on how it contributes to the article.
- Organize your talk in a logical manner (Introduction, Historical Background, Clearly Stated Aims, Description of Methods, Presentation of Results, Summary Statement, Future Work, Acknowledgements) and THANK YOUR AUDIENCE.
- Start with an overview of your talk; give the audience a brief framework for the presentation.
- Keep it simple (both the message and the presentation materials); avoid distracting animations, fades, etc. Let your information be the focus of attention.
- Proofread your material (three times is not too many). Use a spellchecker.
- Find out how much time you are allotted and how much of that should be left for questions. Do not get defensive about the questions asked, and if you cannot answer or understand a question, do not be afraid to say you do not know the answer, or to ask for clarification. Remember, your actual presentation will take longer than your practice.
- Count on spending about one to two minutes per slide; do not overload your presentation with too many slides (About 6 or 7 good slides per 10 minutes may be optimal.) Do not overload your slides with information; keep your slides simple, and use large font.
- Practice your talk out loud.
- If you use a computer, test run your presentation on multiple platforms and versions of operational software.
- Carry a backup (thumb drive, CD, DVD, etc.)
- A picture is worth 1000 words. Try to have a picture or figure on each slide INSTEAD of words. No one likes going to a presentation when there are only words on a slide. Use a figure instead and YOU provide the words orally.