

**BC493-001 Seminar in Biochemistry**  
**Fall, 2020. Online**  
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## Course Objectives:

- ❑ Develop your ability to determine the value and relevance of the original literature in biochemistry. This will be accomplished by in-depth exploration and oral presentation of a recent scientific paper.
- ❑ Practice in preparing and presenting an oral presentation. This is an essential skill for a successful career in biochemistry and is also required in the majority of careers. You will often be judged on the basis of your ability to speak to a group.
- ❑ Begin doing groundwork for your Senior Thesis

## Class Schedule:

August 26<sup>th</sup>: Introduction to the course.

September 2<sup>nd</sup>: Tips on delivering an effective presentation.

September 16<sup>th</sup>: – through the end of semester: Student presentations.

## Grading

- 1. Presentation topic (10%).** Your topic AND the reference for your primary, peer-reviewed paper you will use for your presentation is **due 2 weeks prior to your presentation**. Please email this information. Feel free to contact me before your due date to discuss possible topics and papers.
- 2. Abstract of presentation (15%).** **Due one week BEFORE your presentation** (by e-mail). One page, with your own title, 1 ½ spacing, and *written in your own words*. Include a list of all the literature you plan to use. Abstracts will be graded for *spelling and grammar*, as well as content, organization, and proper references.
- 3. Presentation (50%).** Must be based on a peer-reviewed research article from the primary literature, with supporting papers (including review articles) to introduce and give perspective to the topic. Each presentation should be ~ 30 minutes.

You will be graded on:

- ❑ Content of the presentation:
  - Understanding of the topic
  - Appropriate introduction and background
  - Discussion of methods and results
  - Conclusions
- ❑ Quality of the presentation:
  - Delivery
  - Slide interaction
  - Visual aids/quality of slides (not too busy, good use of bulleted points, etc.)
- ❑ Length of the presentation:
  - If your talk is shorter than ~30 minutes, points may be deducted.

- 4. Presentation evaluations (25%).** You are required to evaluate each student presentation and provide feedback online. Your name and the speaker's name must be at the top of each form. Do not simply give perfect scores (unless they truly deserve it). You need to provide constructive criticism.

Traditional letter grades (A to F) will be assigned. The individual class assignments will constitute the percentage of your grade as indicated above. Your final grade will be reduced for every unexcused absence.

## The paper and the presentation

- The easiest way to find a presentation topic is by reading well-written review articles first. You should start by reading recent review articles in the "News and Views" sections of journals like Science and Nature. Other excellent journals with reviews include: Cell; Journal of Biological Chemistry, the Current Opinion journals, Trends in Biochemistry, Trends in Cell Biology, Trends in Biology, Trends in Genetics, Current Biology, The Scientist (I highly recommend!), etc.
- The reviews are usually written to highlight a recent paper of particular significance.
- Find reviews and primary research articles using Pubmed:  
<http://www.ncbi.nlm.nih.gov/pubmed/>
- Select a topic that interests you – and your audience! *Very important.*
- Only research papers that contain original research findings can be selected. Your paper must be from a high quality peer-reviewed journal and should not be older than three years.
- The primary paper will provide the basis for the talk; the review(s) will help provide introductory information.
- Pay attention to the length of the primary paper. Some very short 'letters' (as commonly published in Science and Nature) may not provide enough material. A good way to check for this is to look at the number of figures. It should contain at least four, multi-panel figures. **DO NOT PRESENT ALL FIGURES IN A PANEL ON ONE SLIDE – KEEP YOUR SLIDES SIMPLE AND UNCLUTTERED.**
- Present work that uses biochemistry, cell biology, or molecular biology approaches; stay away from clinical research.
- You will prepare a PowerPoint presentation on the selected topic.
- Pay close attention to the time it takes to give the presentation. A general rule of thumb is about 1 minute/slide, but it can be highly variable.
- You are required to write an evaluation to provide *constructive criticism* for the speaker.

## Abstract:

You must write a 1-page abstract that contains the following:

1. Your name, date, and your title of the presentation
2. A short description of the general research problem
3. Why you thought this paper was important
4. A brief synopsis of the results
5. A brief conclusion
6. List the reference for the main paper(s) that you will be discussing
7. **The abstract must be in your own words – not the abstract of the paper you select.**

The abstract should be tailored towards the audience (easy to understand without background information). Use a short, general title (not the title of your selected paper or reviews). You should cite the reference of your paper/s in the following format:

Authors (include all – do not use et.al.), Year, Title, Journal, volume: inclusive page numbers.

For example:

Robzyk, K., Recht, J. and Osley, M.A. (2000). Rad6-dependent ubiquitination of histone H2B in yeast. *Science*, 287:501-504.

**Your abstract must be emailed to me at least 7 days prior to your presentation.**

## Preparing and Presenting:

### General Considerations:

#### 1. Content:

- Realize that different people have different perspectives and understanding of your topic. You must target your presentation to a broad audience. If you don't, you'll lose your audience and risk a lower grade.
- Make sure that you actually understand the points that you are presenting. Don't simply repeat points from the paper, don't simply repeat/memorize conclusions. Make sure you follow the author's arguments; make sure that the data supports the conclusions.
- Don't preface your discussion of a figure with 'I didn't really understand this experiment, but....'
- Bridge from simple to the complex.
- Pay close attention to grammar and spelling!

#### 2. Presentation style:

- Tell your audience why they should be watching your presentation. State the significance (big picture) of the research in the beginning. And state it again throughout.
- Your excitement or boredom about a subject tends to be highly contagious to the audience.
- Establish communication with the audience.
- Speak freely; try not to read from your notes. Interact with each slide, and the audience.
- Practice good voice projection, tempo and tone. Speak slowly, articulate clearly.
- Have confidence (even if nervous). If you feel relaxed and at home 'on stage', your audience will concentrate on what you are saying.
- Avoid speech mannerisms such as "um" → record yourself or ask a friend to point them out.

- Don't talk too quietly, or mumble. Project your voice confidently.
- Avoid acronyms. When used, make certain you define them each time. Acronyms tend to be a major problem with most presentations.
- Don't go overtime. Don't go undertime – it generally means that you should have taken more time on the introduction, or that you didn't explain the experiments thoroughly, or convince the audience that your topic is relevant.

### 3. Visual aids:

- Font size: stay close to the default sizes in the Power Point template. Don't mix fonts if possible.
- If you have to start out by saying: "I know you can't really see what's on this slide, but..." or "this is a really confusing slide, but...." It's a useless slide.
- Information content: Don't make too many points per slide. Attention will drop if you present your audience with overloaded, busy slides. Just make an additional slide. Bulleted points should be short and sweet.
- Slide style: Don't use a busy slide background. Keep it simple.
- Slide title: Remember that the title is the most valuable 'real estate' on your slide. Make it count – I prefer titles that are a statement of the result or a summary of what you are showing in the slide.
- Use pictures/symbols/diagrams, rather than text, wherever possible.
- Vary your visuals. Follow text slides with graphics, etc. if you can.
- Use animations, but don't get carried away.
- Use the original figures from your paper and pay close attention to resolution. See me if you have problems obtaining high resolution.
- A good rule of thumb: for a 30-minute talk, prepare between 25 and 35 slides (depending on amount of content per slide and your speaking pace). If you have more slides than minutes available for your presentation, you may be in trouble.

### Format of the presentation:

The general outline of a scientific talk is as follows:

- Introduction: Provide a broad Introduction that funnels to the specific question that will be addressed in the paper, and why it is relevant. Introduce and clearly describe the goals of the research. Include a slide that shows your paper.
- Results: Present and describe the results. Slowly walk your audience through each experiment. Clearly state the conclusion of each experiment.
- Conclusions and future directions: Have at least one slide that summarizes the findings of the paper, how it impacts the field, etc. Another slide that suggests future directions for the research.
- Citations: A list of all references used.

Think of the talk as telling a story. Scientific experiments generally follow logical arguments. Explain why certain experiments were done; find the 'logical thread' in a series of experiments. Good science is often like a good detective story. The best talks tell an interesting story that excites and involves the audience. Remember, you should read several papers – both reviews and other publications - as part of your preparation. This will help with Introduction/Background and set the stage for the paper you will present.

#### ➤ Introduction

- You need to develop sufficient background for the general listener to understand your talk.

- Better to over explain and have all your audience appreciate the importance of your topic rather than to confuse a portion of your audience with jargon and/or technical speech. Properly introduce the important concepts/abbreviations etc.
  
- **Results**
  - Progress smoothly into a discussion of the experiments in the original paper. Prior to showing experiments, you may want a slide that introduces the experiment/methods, and/or reminds the audience of why it's important.
  - Describe the data using original figures. Do not include the figure legends from the paper. They are not made for this format. 'Walk' the audience through an experiment, explaining what was done and how the experiment was performed.
  - It is important to intermittently remind the audience of the "big picture."
  
- **Conclusions and future directions**
  - Review the major points of your talk ('Take home lesson'). Come back to the main questions/hypotheses stated in the Introduction. What did we learn? What are the future directions?
  
- **Citations/references**
  - As a final slide, list your references. Give their full citation, including authors, paper title, year published, vol.#, etc.
  - For material taken from the web, try to be as descriptive as possible. Give the title of the website, etc.

## Combating nervousness:

There is no remedy for stage fright, but you can make it more bearable and less noticeable by using the following tricks:

- ⇒ Know your subject matter
- ⇒ Be prepared (practice, practice, practice!)
- ⇒ Have EXCELLENT slides
- ⇒ Know your transitions from one slide to the next
- **Practice** your talk out loud at least three times. Record your presentation using your phone, then listen to yourself carefully. This helps to eliminate filler words. Practice in front of friends.
- **Practice again... And again.** Make sure you know what point you want to make with each slide.
- Know your transitions. Identify something on each slide that will remind you of your next slide.
- Have the first few sentences of the Introduction especially well rehearsed. It gets easier once you are underway.
- Good breathing techniques work wonders against nervousness.
- Familiarize yourself with the room. Picture the seats filled with people smiling at you.

## BC493 Seminar Evaluation

**Speaker's Name:** \_\_\_\_\_

**Your Name:** \_\_\_\_\_

**Please be honest! If you didn't follow the talk, say so. It's not a reflection of your knowledge; it's the lack of the speaker's ability to communicate the big picture/experimental details, etc.!**

**State at least two aspects of the talk that you think could be improved:**

**State at least two aspects of the talk that you really enjoyed:**

**Ask one question about the talk that requires clarification, or just curiosity:**