

## **Silk Biomaterials**

### **Biology 4750/6750**

#### **Goals:**

- 1) Read and analyze primary scientific literature
- 2) Get a solid background and understanding of silk and other biomaterials by reading papers, presenting and discussing them.

#### **Presentations:**

The main idea of the in-class presentations is to communicate the assigned papers in a complete and efficient manner. The whole presentation, for each paper, should be no more than 7 minutes for 1 paper per student or, 5 minutes per presentation for two papers per student. See below for further explanation. This time should be used to discuss the paper and cover the following points:

- 1) Start with a summary of the paper's conclusions and results.**
- 2) Assess whether the methods used in the article are appropriate for the research.**
- 3) Does the data obtained support the conclusion's that the authors reached.**
- 4) If it is a review paper then focus on 1) as this will be the majority of the article.**

The goals are to determine the main points of the published work and if the steps used to obtain them are valid and reasonable. Upon the completion of a paper's presentation, questions maybe asked and a brief discussion will be held to answer these questions as thoroughly as possible. The presentations will proceed through the class until each student has presented all of their assigned articles.

The number of presentations per student per class period is predicated on the number of students enrolled. Ten students presenting 10 minutes each is 100 total minutes. With transitions between students, questions and discussion we can easily reach the class limit. We will adjust accordingly based upon class size.

#### **Homework:**

Each week, every student will be assigned one to two articles that they will be responsible for reading, understanding, and summarizing for a meaningful and continuous presentation for the following week. The subjects for each week will vary and can be found in the tentative schedule. Also, if students are unfamiliar with various topics, methods, and results they are strongly encouraged to seek assistance, from various resources, before the next class to prevent wasting time and to increase the overall benefit from the class.

Before the beginning of the following week's class, a one page summary of the top four papers from the previous week will need to be submitted to Dr. Jones. These top papers are each student's individual choice and should not be the same papers that the student presented. The

summary should briefly describe each paper's results/conclusions and the student's reasons/logic as to why this paper was one of the top articles. These need to be deposited in the box folder by Monday morning (See "First Class Period" for further explanation).

## Grading:

Grades are based on oral presentations and the weekly write-ups. Basically, did you understand and present the paper(s) you were assigned in a logical, concise and well prepared fashion that was also within the time period. Finally, did you understand the papers you chose to write about in your top-four. If you have any questions concerning your papers you can talk to Justin, Justin.A.Jones@usu.edu, 7-9292 or room 205D in the USTAR Bioinnovations Building.

	Excellent	Good	Fair	Poor	
Delivery	*Well prepared, concise presentation.	*Well prepared presentation.	*Haphazard presentation. *Multiple pauses or general unpreparedness.	*Haphazard presentation. *Excessive pauses. *Unprepared.	*Does not present.
Knowledge and Understanding	*Confidence in material. *Able to accurately answer questions.	*Confidence in material. *Able to accurately answer some questions.	*Confidence in material. *Able to accurately answer minimal questions.	*Lacking confidence in material. *Cannot answer questions.	*Does not present.
Time	Within 15% of the time for presentation.	Within 20% of the time for the presentation.	Within 25% of the time for the presentation.	More than 25% off the time for the presentation.	*Does not present.
I am accommodating and understand that there are situations beyond your control. If you cannot present on a certain week, tell me ahead of time if you are able and we will work it out. If you cannot tell me prior, let me know as soon as you can!					

Students are cautioned to not prepare their presentation(s) immediately preceding the class period. You will need a better understanding of the material and quality of presentation than can be accomplished and prepared in such a short period of time.

## First Class Period:

**Send me an email from your preferred email address.** I will then disseminate an invitation to a "Box" folder that will have weekly reading assignments for your presentations. As well, your top-four homework assignments can be deposited in the designated folder.

## **Schedule:**

- Week 0 (8/27/18): Introduction and Syllabus discussion
- Week 1 (9/03/18): No class, Labor Day
- Week 2 (9/10/18): Methods
- Week 3 (9/17/18): Synthetic Fibers Overview
- Week 4 (9/24/18): Overview of Insect Silks
- Week 5 (10/01/18): Major Ampullate Silk
- Week 6 (10/08/18): Major Continued
- Week 7 (10/15/18): Minor Ampullate Silk
- Week 8 (10/22/18): Recent Scientific Articles (Your Choice)
- Week 9 (10/29/18): Flagelliform and Aggregate Silks
- Week 10 (11/05/18): Piriform/Pyriform Silks
- Week 11 (11/12/18): Aciniform and Tubuliform Silks
- Week 12 (11/19/18): Recent Scientific Articles (Your Choice)
- Week 13 (11/26/18): Applications and Diversification of Spider Silks
- Week 14 (12/03/18): Recent Spider Silk Articles (Last 6 Months)