SPECIAL TOPICS IN INFLAMMATORY DISEASES (BIO 490)
Fall Semester, 2018
Tuesday, Thursday 4 PM-4:50 PM
Room 271, Chemistry Biology Building (CBB)

Instructors:
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Course Description: This is an advanced course that will examine the physiology and pathophysiology of inflammatory diseases with particular emphasis on the gastrointestinal tract.

Goals:

1) Reinforce your knowledge of immunology and gastrointestinal physiology.
2) Learn to discuss the dysregulation of the immune-GI interactions in disease.
3) Improve reading and comprehension skills for research articles.
4) Improve writing and oral communication skills.

Course Format:
This course involves active discussion among the entire class as well as within small groups. You should bring your laptops (or another form of mobile electronic device) to search for information. Your participation is critical as is your attendance in class. Absence from class affects your participation grade unless there is a valid reason, in which case an additional assignment will be given.

Assignment tips and Grading:
Label all submitted documents with name, title and date.

Your final grade will be determined based on the scores from the assignments noted below.

Final grades will be based on the following point distribution:

Letter Grade	**Percentage**
A	93-100%
A-	90-92%
B+	87-89%
B	83-86%
B-	80-82%

C+	77-79%
C	73-76%
C-	70-72%
D+	67-69%
D	60-66%
F	0-59%

Note: Each day that an assignment is late will result in a deduction of 10% from the grade. Thus a written report turned in 3 days late will receive, at best, 70% credit.

Any disagreement or argument about the distribution of points on any assignment must be presented **in writing** with an explanation and evidence supporting their claim to the instructor within **one week** of the date the assignment was due.

Expectations: It is expected that you come to class ready to participate. The class will have discussions where there are no right or wrong answers – your opinion is important to contribute. The ideal student will contribute to discussions but will also let others participate. You will be prepared for class so that you can contribute.

1) **Pre-class preparation**

For each scientific paper you must answer the following questions:

1) Who did the work, where was the work done, who funded the study?
2) What is the **hypothesis**?
3) Did they use animal, cell and/or human models?
4) What was the most significant finding?
5) Do you believe their conclusion?
6) What else would you like to see in the paper?
7) What are two questions you have about the paper?

2) **In class and group participation and presentations (25%)**

You must come prepared for class. You need to read the articles and understand them so that you can participate in class. This applies to review articles as well as research articles. Answering the questions in the pre-preparation list will help you to think about what you have read, do some relevant searches on your own, and compare what you read to what we have discussed in the past.

3) **Written Report (25%)** will focus on the ways that the GI system can affect diseases. Consider the role of the microbiome (germ free, prebiotics, probiotics) and inflammation (immune cells, cytokines, non-immune cells) in your response.

- Pancreas- eg. diabetes
- Liver – eg. NAFLD
- Bone – eg. Osteoporosis

- Brain – eg. autism
- Lung – eg. asthma
- Cardiovascular system – eg. Hypertension

We will assign the systems randomly to each student.

The report should include 1) Title page (topic title, author's name, email, course number BIO 490, date of submission), 2) Background (ALL CITATIONS MUST BE PEER REVIEWED PUBLICATIONS), 3) hypothesis tested 4) what did they find (in your own words) 5) significance (how does this relate to other studies in the literature, how does it move science forward, what do we learn from this?), 6) references (>8).

The report should be 8 pages double-spaced (NOT counting title page) and numbered pages written in Arial or Times New Roman 12 point font. The use of figures (which can be included after the 8 page written report) can be used to illustrate important concepts or models. If figures are reproduced from an outside source, the source should be identified in the legend of the figure. You may also develop your own figures, models, graphs, or tables in your written paper.

References should be noted in parentheses at appropriate places in the text with a number and then listed in your reference list. Below is the form that references should be put in:

Grubb, B.F., Rogers T.D., Boucher R.C., Osterowski L.E. Ion transport across cystic fibrosis and normal murine olfactory and ciliated epithelium. *Am. J. Physiology*, 296: C1301-1309, 2009.

4) **Final Oral Presentation (25%)** – 15-20 min + question and answers. This is where you sell your topic that is assigned to you. BEFORE CLASS each presenting student should provide the instructors with a slide outline/**handout** of their talk and post it online (preferable as a pdf). The presentation must be clear (not too many words on each slide), should have an **introduction/background** (several slides to help the class understand the problem and why it is important to study), the **hypothesis** being tested, **approaches** used, **data** (you should show some of the actual data from paper), **what it means** in the big picture (significance), **conclusions**. **A MODEL MUST BE INCLUDED AT THE END** – ie: a diagram showing what modulates what and/or how the results fit in to understanding that aspect of physiology (affects the cell, affects other organs, affects signaling pathways etc). Ask the instructors for help on this if needed.

You will be evaluated on your preparation (quality of slide show), oral presentation (logic, delivery, timing), question period (completeness of answers), and clarity of presentation and answers.

5) **Quiz points (20%)** – In class short quizzes will be given throughout the semester.

6) **Written paper peer review critiques (5%) –** Critiques are due November 9th and should be written in Word program to allow "track changes" and commenting. The instructors will send 1 report (submitted Oct 26) to each student for review.

Viewing Grades in D2L

Points you receive for graded activities will be posted to the D2L Grade Book. Click on the Grades link to view your points.

Suggestions for Assignments:

Preparing written reports

a. Begin by locating and reading appropriate background material and searching electronic databases for recent reviews and primary research papers.
b. Once you have located and read an appropriate amount of source material prepare an outline and then write your report. You may use subheadings.
c. Remember to give appropriate credit to idea that are not your own by citing the relevant primary source, review, book or website. It is permissible to paraphrase other authors on occasion, but NEVER COPY something verbatim from another text without attribution (referencing). THIS IS PLAGIARISM and is NOT ACCEPTABLE. Word-for-word quotations from other works should be short and should be used sparingly. When used they should be set off by quotation marks and properly referenced. Note that the software "TurnItIn" may be used to check for Plagiarism in accordance with MSU policy.

Preparing Oral Reports

a. Construct your presentation around the outline of your written report.
b. Make abundant use of visual aids including charts, graphs, figures and written text. These should be prepared ahead of time so that you do not spend time drawing them during your talk.
c. Try to avoid slides with lots of small text and tables on them. Make text large and make figures large so all can see them. Check all visuals for typographical or grammatical errors.
d. Practice your presentation ahead of time to make sure it can be presented in the allotted time. If not, cut down the material. Try to avoid long pauses, "OK," "ummm" and "you know."
e. Plan your visuals so that they will help you make transitions between thoughts and so that you don't have to flip back and forth between them. Don't try to memorize your presentation word-for-word. Some notes are acceptable but try to avoid the use of cue cards.
f. Try to anticipate points at which questions might be asked and think through possible answers. Be ready to be flexible not dogmatic in your replies. If necessary defer the answer to the end of the talk, but never be rude or defensive when responding.
g. When presenting, try to project self-confidence and enthusiasm for the subject. If you don't care, the audience certainly won't.
h. No hats and no chewing gum.

CLASS CALENDAR

Sept 4- Tuesday:

- Introduction of class, organization, expectations and what we are setting out to do.
- Intro of instructors
- Intro of students
- Types of Sources and how to find them

Sept 6- Thursday:

- What is a hypothesis?
- How do you structure a research talk?
    - Title, authors
    - Background
    - Rationale/Hypothesis
    - Experimental models and design
    - Results (Figures/tables) including statistical analysis, number of replicates
    - Conclusion, perspective in terms of general story
- How do you structure a research paper?

Sept 11- Tuesday:

- Introduction to Microbiome
- Resumes

Sept 13- Thursday:

- Guest Lecture – Sue Kissenger UWSP Career Services

- **To Do for next class**: Review inflammation and GI physiology for Sept 18th class. Papers for Sept 25 will be posted.

Sept 18- Tuesday:

- Class: **Overview of inflammation and GI physiology.**
- Assign Papers for Sept 25 Group presentations on IBD models – groups will meet before leaving to assign tasks for each member.

Sept 20- Thursday:

- Quiz (5 points)
- Class: **Overview of GI diseases with emphasis on IBD.**

Sept 25- Tuesday:

- Class: **IBD Models: TNBS and DSS**
- ~4 students per paper (4 total)
- Assign papers for individual student presentations.

Sept 27- Thursday:

- Class: **IBD Models: Bacterial, T-cell transfer**
- ~4 students per paper (4 total)

- **Homework**: Write a -1 page- paper on which model you like and why. **Due Oct 2nd.**

Oct. 2 – Tuesday:

- Class: **IBD Pathogenesis: Role of the microbiome**
- 2 paper presentations – Group 1 (15-20 min)

Oct. 4 – Thursday:

- Class: **IBD Pathogenesis: Role of the microbiome**
- 2 paper presentations – Group 2 (15-20 min)
- Final writing topic assigned

Oct 9 – Tuesday:

- Class: **IBD Pathogenesis: Immunological aspects**
- 2 paper presentations – Group 3 (15-20 min)

Oct 11 – Thursday:

- Class: **IBD Pathogenesis: Immunological aspects**
- 2 paper presentations – Group 4 (15-20 min)

Oct 16 – Tuesday:

- Class: **Treatment of IBD: Biologicals**
- 2 paper presentations – Group 5 (15-20 min)

Oct 18 – Thursday:

- Class: **Treatment of IBD: Biologicals**
- 2 paper presentations – Group 6 (15-20 min)

- Students will find their paper for their appropriate topic on their own AND GET IT APPROVED and present it.

Oct 23 – Tuesday:

- Class: **Treatment of IBD: Probiotics**
- 2 paper presentations – Group 1 (15-20 min)

Oct 25 – Thursday:

- Class: **Treatment of IBD: Probiotics**
- 2 paper presentations – Group 2 (15-20 min)

Oct 30 – Tuesday:

- Class: **Treatment of IBD: Prebiotics**
- 2 paper presentations – Group 3 (15-20 min)

Nov 1 – Thursday:

- Class: **Treatment of IBD: Prebiotics**
- 2 paper presentations – Group 4 (15-20 min)

- Students SUBMIT REPORTS FOR BLIND PEER REVIEW (instructions given in class)

Nov 6: Tuesday

- Class: **Treatment of IBD: Fecal Transfer**
- 2 papers to present – Group 5 (15-20 min)

Nov 8: Thursday

- Class: **Treatment of IBD: Fecal Transfer**
- 2 papers to present – Group 6 (15-20 min)

Nov 13: Tuesday

- 2 STUDENT PRESENTATIONS – Group 1 – 20 min max each
- Quiz after each presentation (provided by presenter)

Nov 15: Thursday

- 2 STUDENT PRESENTATIONS – Group 2 – 20 min max each
- Quiz after each presentation (provided by presenter)

- Assigned reviewers return their reviews/critiques to instructor

Nov 20: Tuesday

- 2 STUDENT PRESENTATIONS – Group 3 – 20 min max each
- Quiz after each presentation (provided by presenter)

- Instructors will also provide critiques and peer-review feedbacks to students on their written paper

Nov 22: Thursday

- NO CLASS THANKSGIVING BREAK

Nov 27: Thursday

- 2 STUDENT PRESENTATIONS – Group 4 – 20 min max each
- Quiz after each presentation (provided by presenter)

Nov 29: Tuesday

- 2 STUDENT PRESENTATIONS – Group 5 – 20 min max each
- Quiz after each presentation (provided by presenter)

Dec 4: Tuesday

- 2 STUDENT PRESENTATIONS – Group 6 – 20 min max each
- Quiz after each presentation (provided by presenter)

Dec 6: Tuesday

- **Microbiome and other organs**

Dec 11: Thursday

- Class: **Therapeutic Targets for IBD – Lecture Discussion**

Dec 13: Tuesday

- Class: **IBD effects on Bone – Lecture Discussion**

- Final Written Reports Submission – Submit Final Versions after incorporating peer-review comments and instructor feedback on D2L Dropbox.
  (Note: final versions of reports will be subjected to TurnItIn software to detect plagiarism)

Finals week: No class, enjoy your break!

Course Policies

Understand When You May Drop This Course

It is the student's responsibility to understand when they need to consider unenrolling from a course. Refer to the UWSP Academic Calendar for dates and deadlines for registration. After this period, a serious and compelling reason is required to drop from the course. Serious and compelling reasons includes: (1) documented and significant change in work hours, leaving student unable to attend class, or (2) documented and severe physical/mental illness/injury to the student or student's family.

Inform Your Instructor of Any Accommodations Needed

If you have a documented disability and verification from the Disability and Assistive Technology Center and wish to discuss academic accommodations, please contact your instructor as soon as possible. It is the student's responsibility to provide documentation of disability to Disability Services and meet with a Disability Services counselor to request special accommodation *before* classes start.

The Disability and Assistive Technology Center is located in 609 Albertson Hall and can be contacted by phone at (715) 346-3365 (Voice) (715) 346-3362 (TDD only) or via email at datctr@uwsp.edu

Statement of Policy
UW-Stevens Point will modify academic program requirements as necessary to ensure that they do not discriminate against qualified applicants or students with disabilities.

The modifications should not affect the substance of educational programs or compromise academic standards; nor should they intrude upon academic freedom. Examinations or other procedures used for evaluating students' academic achievements may be adapted. The results of such evaluation must demonstrate the student's achievement in the academic activity, rather than describe his/her disability.

If modifications are required due to a disability, please inform the instructor and contact the Disability and Assistive Technology Center in 609 ALB, or (715) 346-3365.

Commit to Integrity

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this class and also integrity in your behavior in and out of the classroom.

UWSP Academic Honesty Policy & Procedures

Student Academic Disciplinary Procedures

UWSP 14.01 Statement of principles

The board of regents, administrators, faculty, academic staff and students of the university of Wisconsin system believe that academic honesty and integrity are fundamental to the mission of higher education and of the university of Wisconsin system. The university has a responsibility to promote academic honesty and integrity and to develop procedures to deal effectively with instances of academic dishonesty. Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors. Students who violate these standards must be confronted and must accept the consequences of their actions.

UWSP 14.03 Academic misconduct subject to disciplinary action.

(1) Academic misconduct is an act in which a student:

(a) Seeks to claim credit for the work or efforts of another without authorization or citation;

(b) Uses unauthorized materials or fabricated data in any academic exercise;

(c) Forges or falsifies academic documents or records;

(d) Intentionally impedes or damages the academic work of others;

(e) Engages in conduct aimed at making false representation of a student's academic performance; or

(f) Assists other students in any of these acts.

(2) Examples of academic misconduct include, but are not limited to: cheating on an examination; collaborating with others in work to be presented, contrary to the stated rules of the course; submitting a paper or assignment as one's own work when a part or all of the paper or assignment is the work of another; submitting a paper or assignment that contains ideas or research of others without appropriately identifying the sources of those ideas; stealing examinations or course materials; submitting, if contrary to the rules of a course, work previously presented in another course; tampering with the laboratory experiment or computer program of another student; knowingly and intentionally

assisting another student in any of the above, including assistance in an arrangement whereby any work, classroom performance, examination or other activity is submitted or performed by a person other than the student under whose name the work is submitted or performed.

Religious Beliefs

Relief from any academic requirement due to religious beliefs will be accommodated according to UWS 22.03, with notification within the first three weeks of class.