



College of Natural Science MICHIGAN STATE UNIVERSITY

Department of Physiology

PSL 460 Fall 2020 Syllabus

Special Topics in Inflammatory diseases

Credit Hours: 2

Course meeting days and time: Every Thursday from 10.20 AM to 12.10 PM

Course location: D2L.msu.edu

Course Modality (online, hybrid, in-person): Online

Instructor

Narayanan Parameswaran, BVSc., M.S., Ph.D., Professor, Department of Physiology

Instructor (pronouns): he, him, his

Office: 3165 BPS building

Office hours: By appointment via zoom meetings. If you need to meet with me one-on-one, feel free to email me with days and times that work for you and we can find mutually agreeable time to meet. I will make every effort to respond to your emails with-in 24 hours.

Phone: 517-884-5115 (This is my office phone and calls are forwarded to my personal phone)

E-mail: narap@msu.edu (Note that this is the preferred method of contact)

Course Information

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 on pubmed and the internet. Your attendance and participation in class are critical. Absence from class affects your participation grade unless there is a valid reason, in which case an additional assignment will be given.

Required Textbook & Course Materials: None. Note that the class will utilize published papers on the topic of inflammatory diseases with a focus on gastrointestinal system. These will be provided at the beginning and throughout the semester.

Required Technologies:

This is a discussion based class where we will critically examine current literature. This requires back and forth discussion. As this course is online for Fall 2020, students are expected to use Zoom to participate in class. Because the goal of this class is to make sure everyone is able to participate in class discussions, it is important to use video for your zoom class (i.e. webcam is required). In addition, you will all have opportunities to present in class and this will require ability to share screen for powerpoint presentations. This means that you will also need access to high speed internet. Some companies offer students free or reduced cost internet: <https://remote.msu.edu/learning/internet.html>

Recommended Texts & Other Materials: Review your PSL 431/432 notes.

Learning Continuity Statement:

If you are unable to attend a class due to sickness please make every effort to contact me ASAP. We will discuss written/oral assignments based on what you will be missing. Class participation during approved prolonged absences will be disregarded, ungraded, and not include when calculating final grades. If the prolonged absence exceeds the date when grades are due to the Registrar's Office students will receive an Incomplete (I).

Course Continuity Statement:

If I am unable to attend the class (eg. due to sickness) I will make every effort to keep you informed. I will also arrange for substitute instructors to lead the class discussions.

Prerequisite: PSL 431/432

Course platforms/Structure: D2L for all content access. Zoom will be used for online discussions. An alternative (and backup) platform is Microsoft Teams.

Technical Assistance:

If you need technical assistance at any time during the course or to report a problem you can:

- Visit the MSU Help site at <http://help.msu.edu>
- Visit the Desire2Learn Help Site at <http://help.d2l.msu.edu>
- Call the MSU IT Service Desk at (517)432-6200, (844)678-6200, or e-mail at ithelp@msu.edu
- Request assistance navigating and requesting instructional design help: <https://tech.msu.edu/service-catalog/teaching/instructional-design-development/>

Browser/mobile support for D2L:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

Guide for internet speed: <https://broadbandnow.com/guides/how-much-internet-speed-do-i-need>. This course requires access to "high speed" internet.

Instructional objectives, expectations and guidelines:

Overall objective of the course is to:

- 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.

Expectations: It is expected that you come to class ready (prepared) 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 need to read the articles and look up what you don't understand PRIOR to class so that you can contribute to discussions. USE OF ELECTRONICS SHOULD BE RESTRICTED TO WHAT IS PERTINENT FOR THE CLASS DISCUSSION. THAT MEANS, NO TEXTING, FACE BOOKING, INSTAGRAMING ETC – these activities will significantly negatively impact your participation score. Paying attention is important not only for your personal learning and contribution but it also allows you to help your fellow students by providing input and feedback to them.

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) What is their conclusion?
- 6) Do you believe their conclusion? Why? Why not?
- 8) What else would you like to see in the paper?
- 9) What are two questions you have about the paper?
- 10) What are two things you learned from reading the paper?

In class and group participation and presentations

You must come prepared for class. You need to read the articles and understand them (this may require you to read other articles and reviews and/or look up things that you don't understand) 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.

Written Report will focus on the ways that the GI system can affect other organs and influence disease progression. Consider the role of the microbiome (germ free, prebiotics, probiotics) and/or inflammation (immune cells, cytokines, non-immune cells) in your response. Some examples include:

TARGET ORGAN - DISEASE

- Pancreas- eg. diabetes
- Liver – eg. NAFLD
- Bone – eg. Osteoporosis
- Brain – eg. autism
- Lung – eg. asthma
- Cardiovascular system – eg. Hypertension

An example of a topic would be the role of gut microbiome in hypertension.

The report should include 1) Title page (topic title, author's name, email, course number PSL 460, date of submission), 2) Background (which includes multiple citations of articles used to provide information to understand the target organ and the disease; ALL CITATIONS MUST BE PEER REVIEWED PUBLICATIONS), 3) **A proposed model (developed by you) that includes potential mechanisms of how the GI tract regulates your organ/disease – this model should include how/where the 5 research articles contribute to the model, see example below;** 4) Discuss the individual articles (each getting at least a paragraph) and what they found (in your own words) including the significance (how does this relate to other studies in the literature, how does it move science forward, what do we learn from this?), 5) Spend a paragraph or two pulling all the study information together and how it supports your model 6) Include a final conclusion paragraph, 8) references (>12).

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. You are required to include your model (see example below) that includes potential mechanisms of how the gut regulates your organ/disease. 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 additional 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. , T.D. Rogers, R.C. Boucher, and L.E. Osterowski. Ion transport across cystic fibrosis and normal murine olfactory and ciliated epithelium. *Am. J. Physiology*, 296: C1301-1309, 2009. An example of a final paper will be posted in D2L.

Here is an example of a model (with figure legend and references) from a past student:

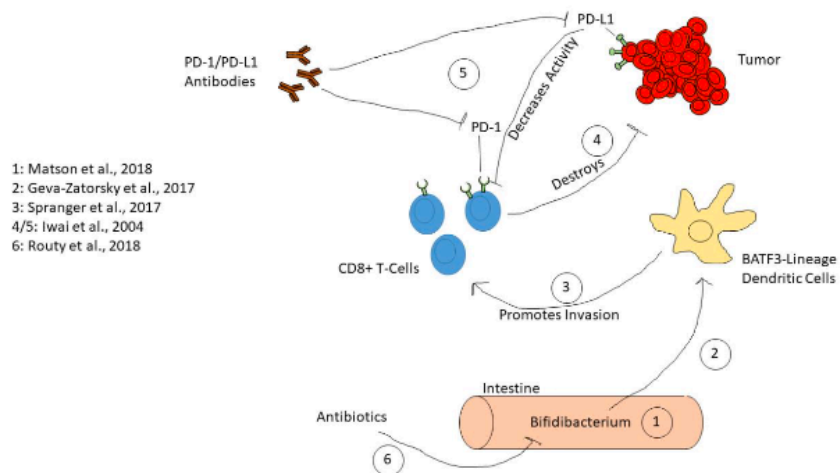


Figure 1: Bifidobacterium, specifically *B. adolescentis*, are in higher abundance in the gut for patients who respond better to PD-1/PD-L1 based therapies. *B. adolescentis* increases BATF3-dependent dendritic cells which in turn promote the infiltration of CD8⁺ T-cells into tumor tissues. Once in the tissue, the T-cells are inhibited by the tumor PD-L1 ligand binding to the T-cells' PD-1 receptors. Once PD-1 or PD-L1 antibodies bind to their respective targets, the cytotoxic T-cells are no longer inhibited and can destroy the tumor cells.

NOTE THAT A DRAFT MODEL IS REQUIRED FOR THE DRAFT SUBMISSION. A DRAFT SUBMISSION WITHOUT A MODEL WILL GET ONLY 50% OF THE POINTS FOR THE INITIAL SUBMISSION.

Final Oral Presentation– Approximately 25-30 min per talk including discussion. 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), model and **conclusions**. **YOUR MODEL MUST BE INCLUDED in your final presentation** – 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 instructor 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. Rubrics is provided later in the syllabus and we will discuss rubrics in class.

An example of the final presentation is provided in D2L.

Homework: There will be homework for some of the classes. Check the dates for when the homework assignments are due. This will be discussed in the first class.

Suggestions:

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.

Course Outline/Schedule

Assessment Dates:

There are no exams in this course. Grades will be assessed and assigned based on participation, homework, presentations, and writing assignments. Deadlines for all assignments are provided in the table below (see next page). Also, deadlines will be entered in D2L.

Proctoring Arrangements

There is no need for proctoring in this course.

Course Outline

The table below describes the weekly activities including class meeting dates, activities, and due date. The first column describes the class meeting dates. The second column describes the plan for the class on the specific date. The third column describes the grading plan. The fourth column describes the deadlines.

Class meeting dates	Class time: 10.20 AM to 12.10 PM	Grading	DEADLINES
September 3 rd , 2020	Introduction class	Participation	For instructor: Papers for Sep 10 th class posted in D2L. Papers and student groups identified for presentations on Sept 17 th and 24 th .
September 10 th , 2020	Paper discussion to become familiar with studying graphs, techniques etc	Participation	
September 17 th , 2020	Collaborative Paper presentation = students present collaboratively; ~4 students per paper; 2 papers per class. I choose this paper	Participation, team presentation	
September 24 th , 2020	Collaborative Paper presentation = students present collaboratively; ~4 students per paper; 2 papers per class. I choose this paper	Participation, team presentation	
October 1 st , 2020	First hour: Guest lecture by Dr. Kendall from Library services.	Participation	For students: By Oct 2 nd 5 PM: Self selected papers should be emailed to me for approval.

	Second hour: Students work collaboratively to identify papers for presentation		For students: Before Oct 4 th 5 PM: Decide on your topic for the final paper and email me for approval
October 8 th , 2020	Paired paper presentation = 2 presentations per class; Students (paired groups) self-select the paper for presentation. Paper must be approved by me.	Participation, presentation, homework	
October 15 th , 2020	Paired paper presentation = 2 presentations per class; Students (paired groups) self-select the paper for presentation. Paper must be approved by me.	Participation, presentation, homework	
October 22 nd , 2020	Paired paper presentation = 2 presentations per class; Students (paired groups) self-select the paper for presentation. Paper must be approved by me.	Participation, presentation, homework	
October 29 th , 2020	Paired paper presentation = 2 presentations per class; Students (one group will have 2 students, the other group will have 3 students) self-select the paper for presentation. Paper must be approved by me.	Participation, presentation, homework	
November 5 th , 2020	Presentation and discussion of everyone's model (~5-10 min per student)	Participation	For students: Draft submission deadline: Nov 4 th , 5 PM
November 12 th , 2020	FINAL PRESENTATIONS : 4 students per class (~25 min per student)	Participation and presentation	
November 19 th , 2020	FINAL PRESENTATIONS: 4 students per class (~25 min per student)	Participation and presentation	For instructor: Return critiques and comments to students
November 26th	Thanksgiving, no class		
<i>December 3rd, 2020</i>	FINAL PRESENTATIONS: 4 students per class (~25 min per student)	Participation and presentation	
December 10 th , 2020	FINAL PRESENTATIONS: 5 students per class (~25 min per student)	Participation and Presentation	

December 17 th , 2020	FINAL PAPER DUE before Noon		For students: FINAL PAPER DUE before NOON (Dec 17 th)

Grading Policy

Grade Determination: Grades will be determined based on the following distribution of class activities:

Participation=10%

Team presentation=10%

Paired presentatiton=15%

Final presentation=20%

Homework=10%

Draft submission=15%

Final Paper=20%

Grade Dissemination: Grades will be updated on D2L grade book periodically. In addition, feedback will be provided to students on presentations and written assignments.

MSU Final Exam Policy: There will be no final exam.

The final written paper is due December 17th before noon.

Grade Assignment (Grading Scale):

The table below describes the relationships between grades and percentages. The first column describes the grade. The second column describes the percentage range associated with that grade.

Grade	Percentage
4.0	90 to 100%
3.5	85 to 89.9%
3.0	80 to 84.9%
2.5	75 to 79.9%
2.0	70 to 74.9%
1.5	65 to 69.9%

Grade	Percentage
1.0	60 to 64.9%
0	Less than 60%

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.

Scoring Rubrics:

Scoring Rubric for Oral Presentations: The first column describes the category and the second column describes the scoring criteria.

Category	Scoring Criteria
Organization (20%)	The type of presentation is appropriate for the topic and audience.
	Information is presented in a logical sequence.
	Slides are not over-crowded with too many words
Content (40%)	Introduction is attention-getting, lays out the problem well, and establishes a framework for the rest of the presentation.
	Technical terms are well-defined in language appropriate for the target audience.
	Presentation contains accurate information.
	Material included is relevant to the overall message/purpose.
	Appropriate amount of material is prepared, and points made reflect well their relative importance.
	There is an obvious conclusion and model summarizing the presentation.
Presentation (40%)	Speaker maintains good eye contact with the audience and is appropriately animated (e.g., gestures, moving around, etc.).
	Speaker uses a clear, audible voice.
	Delivery is poised, controlled, and smooth.
	Good language skills and pronunciation are used.
	Visual aids are well prepared, informative, effective, and not distracting.
	Length of presentation is within the assigned time limits.
	Information was well communicated.

For writing, the following criteria will be assessed:

- Originality (no plagiarism)
- Clarity
- Accuracy
- Logic
- Relevance or significance and Depth

Other Course Policies

Note that all the dates and assignments are tentative (with the exception of the final exam date) and can be changed at the discretion of the professor.

Fall 2020 MSU Holidays and Breaks (tentative)

Classes Begin: Wednesday Sept. 2

University Closed: Monday Sept. 7

University Closed: Thursday Nov. 26 – Friday Nov. 27

Classes End: Friday Dec. 11

Final Exams: Monday Dec. 14 – Friday Dec. 18

Attendance Policy:

Attendance is mandatory and your participation points is dependent in part on attendance. In spite of the fact that the class will be conducted over zoom, it is important to be an active participant in class discussions. Students must contact the instructor if they cannot attend class due to illness, bereavement, interviews, and other excusable causes.

Academic Honesty:

Article 2.3.3 of the [Academic Freedom Report](#) states “The student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades and professional standards.” In addition, the Department of Physiology adheres to the policies on academic honesty as specified in General Student Regulations 1.0, *Protection of Scholarship and Grades*; the All-University Policy on *Integrity of Scholarship and Grades*.

Academic Conduct Policy:

Refer to the student handbook

Grief Absence Policy:

Michigan State University is committed to ensuring that the bereavement process of a student who loses a family member during a semester does not put the student at an academic disadvantage in their classes. If you require a grief absence fill out a Grief Absence Request form no later than one week after knowledge of the circumstance. This form can be found at <https://reg.msu.edu/StuRes.aspx>. The college will then inform the instructor, who will then work with you to make appropriate accommodations so that you are not penalized due to a verified grief absence.

Grief Absences and Mental Health:

If a student experiences death of a family member or emotional distress from a similar tragedy, refer to MSU’s Grief Absence policy (<https://reg.msu.edu/ROInfo/Notices/GriefAbsence.aspx>)

- *For Mental Health resources see: [Mental Health](#)*

Inclusion and Equity:

- MSU is committed to creating and maintaining an inclusive community in which students, faculty, and staff can work together in an atmosphere free from all forms of discrimination. The Office of Institutional Equity (OIE) reviews concerns related to discrimination and harassment based on sex, gender, gender identity, race, national origin, religion, disability status, and any other protected categories under the University Anti-Discrimination Policy (https://www.hr.msu.edu/policies-procedures/university-wide/ADP_policy.html) and Policy on Relationship Violence and Sexual Misconduct (https://www.hr.msu.edu/policies-procedures/university-wide/RVSM_policy.html). If you experience or witness acts of bias, discrimination, or harassment, please report these to the **Office of Institutional Equity (OIE) website:** <http://oie.msu.edu/>.

The All-University Policy on Integrity Of Scholarship and Grades:

All participants in this class are held to the standard set by MSU's Policy on Integrity of Scholarship and Grades. The policy can be read in full at the [MSU Ombudsperson's website](#)

Eli Broad College of Business Honor Code:

In addition to MSU policies, all students are expected to comply with the Broad College Undergraduate Honor Code (see the code on the [Broad College honor code website](#) or the FT MBA Honor Code (see the [MBA honor code website](#)

Spartan Code of Honor:

On March 22, 2016, The Associated Students of Michigan State University (ASMSU) adopted the following Spartan Code of Honor:

"As a Spartan, I will strive to uphold values of the highest ethical standard. I will practice honesty in my work, foster honesty in my peers, and take pride in knowing that honor is worth more than grades. I will carry these values beyond my time as a student at Michigan State University, continuing the endeavor to build personal integrity in all that I do."

Disability Access:

Students must inform the instructor of any accommodations needed. Information related to disability access is available on the [Resource Center for Persons with Disabilities \(RCPD\) website](#). Students: to make an appointment with a specialist, call: (517) 353-9642 Or TTY: (517) 355-1293 or visit the [RCPD website](#).

Americans with Disabilities Act Accommodations:

- Include a statement inviting ADA accommodation requests. **Statement on ADA Compliance:** *This is your opportunity to describe what efforts you have made to ensure compliance with the Americans with Disabilities Act for the online version or portion of the course and how people with disabilities can contact you and RCPD if aspects of the course are not accessible due to a disability.*

Sample accessibility statement: [RCPD Disability Accommodations Statement](#)

“Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities at 517-884-RCPD or on the web at rcpd.msu.edu. Once your eligibility for an accommodation has been determined, you will be issued a verified individual services accommodation (“VISA”) form. Please present this form to me at the start of the term and/or two weeks prior to the accommodation date (test, project, etc). Requests received after this date will be honored whenever possible.”

Student Rights and Responsibilities:

Students have a range of support and information options available to them to discuss actions or activities related to their academic, personal or professional lives at MSU. These rights and resources are detailed on the [ombudsperson’s website](#).

Limits to Faculty/Student Confidentiality; Mandatory Reporting:

Essays, journals, and other materials submitted for this class are generally considered confidential pursuant to the University's student record policies. However, students should be aware that University employees, including instructors, may not be able to maintain confidentiality when it conflicts with their responsibility to report certain issues to protect the health and safety of MSU community members and others. As the instructor, I must report the following information to other University offices (including the [MSU Police Department](#)) if you share it with me:

- *Suspected child abuse/neglect, even if this maltreatment happened when you were a child,*
- *Allegations of sexual assault or sexual harassment when they involve MSU students, faculty, or staff, and*
- *Credible threats of harm to oneself or to others.*

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In almost all cases, it will be your decision whether you wish to speak with that individual. If you would like to talk about these events in a more confidential setting you are encouraged to make an appointment with the [MSU Counseling Center](#).

[RVSM website](#) Indicate the [RVSM Limits to Confidentiality](#)

Religious Observances:

Students are expected to notify their instructor in advance if they intend to miss class to observe a holy day of their religious faith. Refer to the registrar’s page on [religious observance policy](#). For a current schedule of major religious holidays, see the [office of inclusion and intercultural initiatives](#).

Policies for Student Athletes:

- [Student Athletes](#)