**Psychobiology of Behavioral Development**

**Psychology 409**

**Monday/Wednesday 10:20-11:40**

**Instructor**

Laura Smale, Psychology Department

e-mail: smale@msu.edu

Phone: 331-2349

“Office location”: Either via Zoom or telephone

Office hours: By appointment

**Teaching Assistant**

Allison Costello

Email: coste142@msu.edu

“Office location”: Either via Zoom or telephone

Office hours: By appointment

**Objectives**

1. The overarching goal is to provide you with a basic understanding of developmental changes in behavior with a focus on its biological foundations, including neural and endocrine mechanisms that bring the changes about. It will start with a brief overview of how the nervous system unfolds over the course of development. We will then turn to historical debates, general principles and modern developments in our understanding of interactions between “Nature and Nurture”, as well as maternal effects and epigenetic processes. At this point sex-related behavior and hormones will be brought into the picture and we will consider how they may, or may not, influence developmental processes. In the last part of the course we will go into some depth on the development of biological rhythms and sleep, two behaviors that change in striking ways as development unfolds and that have a major impact on everything else. The course will address research on humans, but also on non-human animals and principles that have emerged from such work.
2. A second goal is to help you gain a more direct and in-depth appreciation of how research in this field is done and how data can be analyzed and interpreted. This will involve finding, reading and critically evaluating original research publications. It will also involve a look at how research is communicated to the general public, and how to distinguish what is good information from what is more questionable.
3. A third goal is for you to further develop your skills in communicating, via writing and in small and large group discussions about research.

These objectives will be accomplished via a combination of lectures, readings, discussions, presentations and a term paper.

**Assigned readings and films will include:**

1.Articles and chapters focused on scientific research posted on the class D2L Web site. The schedule for these readings is posted on D2L as well. Some are assigned to provide you with general background but most are focused publications from research journals that describing original studies.

2.Readings and movies meant for the general public will be posted on D2L at the beginning of each of the 6 modules of the class.

**ZOOM and D2L**

We will be using both Zoom and D2L. There will be 18 “meetings” during the scheduled class time and 10 lectures that have been created in Power Point (with audio) and will be made available for you to watch any time before the dates indicated on the schedule below.

1.**Zoom** will be used for 16 real-time meetings during the regular class times for discussions, review sessions and presentations. These Zoom meetings are also indicated on the schedule below. In addition, you will be using Zoom for small group meetings to prepare for discussions. You can obtain information about Zoom from video tutorials at the following sites:

This first describes one way to join a Zoom meeting:

<https://www.youtube.com/embed/hIkCmbvAHQQ?rel=0&autoplay=1&cc_load_policy=1>

The second is for any of you that might like to have a “virtual backgrounds” for people to see behind you when you are on Zoom:

<https://www.youtube.com/watch?v=3Zq-b51A3dA&feature=emb_rel_pause>

2.**D2L** will be used for several things, including two exams scheduled during the regular class time, and Power Point lectures that have been taped. D2L is also where you will find your readings, study questions and additional miscellaneous but important information. It is also where you will deposit assignments. There is a tutorial where you can learn more about D2L on the banner on the right side of its opening page. Note: You can also access Zoom from D2L via a tab at the bottom of the “communication” banner.

**ASSIGNMENTS AND GRADES**

Your work will be assessed via (1) Two essay exams, (2) 10 written commentaries on your readings, (3) working in small groups to give brief presentations of a research paper to the whole class and to then lead the full class in discussions of those papers, (4) attending and participating in these (and other) full-class Zoom sessions and (5) a term paper and outline of it. More information about each of these is presented below.

**1.Exams:** [**110 points total**] Two exams (55 points each) will be taken **via D2L.**

There will be two exams, one on October 28 and another on December 9 (the last day of class). Both will be from 10:20-11:40. **There will be no final exam.** The exams will cover lectures (available via D2L) and anything else presented to accompany or supplement them (e.g. material from film clips, web pages…etc.), as well as readings assigned to go with lectures; they will **not** include questions from the readings assigned for the 11 discussion periods (see below). The format will be short essays (1/2-1 1/2 pages). One week before each exam you will be given approximately 20 study questions; the exam will be comprised of 6-8 of these (or components of them). Exams will be open book, and although we encourage you to study together over the course of the semester, you must write your own answers to the exam questions, (and be ready to explain your answers should you be asked to do that).

**2.Commentaries:** [**60 points (10 commentaries, 6 points each)]** to be **deposited in a D2L dropbox.**

Eleven class periods (i.e. Zoom sessions) will be focused primarily on discussions of 2-4 published papers (posted on D2L). **Prior to each of these Zoom sessions you will each need to read all of these papers and write a 1 page commentary on each of two of them. T**hese need to be submitted in a dropbox on D2L by the dates indicated on the schedule (below).

The commentaries should spell out **your thoughts** about either the theories and ideas that the authors develop, the purpose of a study described in their paper, the methods they used, the ways in which they interpreted their results, and/or something you would have liked the authors to have done differently and why. These should **not** simply be descriptions of what is in the papers, but it does need to be clear from the commentary that you have actually read the paper.

**This portion of your grade will be based on whether your writings show that you have read and thought about the articles before coming to class.** Grades will be assigned for each of the 2 commentaries according to a scale from 0-3 points where: 0 = no commentary was submitted, 1 = unsatisfactory (e.g. it looks like comments were jotted down in the car on the way to class), 2 = intermediate and 3 = very good (evidence that you spent time carefully reading and thinking about the paper, and you have articulated your ideas clearly). **VERY IMPORTANT: IN ORDER TO RECEIVE ANY CREDIT FOR THE COMMENTARY YOU MUST ALSO PARTICIPATE IN THE DISCUSSION ASSOCIATED WITH IT (SEE BELOW).**

**3.Presentations/discussions: [60 points total (5 presentations/discussions, 12 points each)]**

Each student will participate in development of five short small group presentations and in leading the full class in discussion that follows **in ZOOM.** Group members will all be assigned the same grade for each of these presentations. Zoom links will be provided to you before the discussions.

You will all be assigned to a small group (n=3-4 students/group) early in the semester. Over the course of the semester **each group** will work together to give the 5 short presentations (approximately 8-10 minutes) centered on one of the assigned readings; Zoom will be available to help you work together in preparation for these presentations; if you would like to use PowerPoint for your presentations to the class, you may do that, using up to 6 slides. At the end of each presentation group members will lead a brief (approximately 15 minute) full class discussion about the paper. Group assignments and the associated readings/schedule will be posted before September 12 and the presentations will begin on September 23.

More on the initial presentations:

Most articles that will be the focus of these discussions are “empirical” ones (the first and most detailed description of a research study). For these, the group presentation should briefly highlight (1) key parts of the introduction and what research questions the work was intended to answer, 2) how the experiment was performed, 3) what the major findings were, 4) how the findings were interpreted by the authors of the paper (i.e. what their major conclusions were) and 5) the strengths and weaknesses of the paper (e.g. were there problems with how the study was done or how the results were interpreted). Some of the assigned readings do not describe a primary research study but, rather, present ideas the author has about an issue and integrate several research studies into a more general paper. The presentations of these will be more open.

More on leading the discussions that follow:

After the presentation, members of the group will lead the rest of the class in a discussion of the potential value and the limitations of the paper, and any other basic reactions that folks have to it. Everyone needs to participate at this point. [Note: A video or a short article written for the general public may also be assigned for these days and these can also be brought into the discussions.]

**4.Attendig and participating in 15 ZOOM sessions. [30 points total] and credit will be available for 12 of these**

First, there will be 11 Zoom sessions associated with the discussions of the assigned readings described above. You will be given **2 points** for participation in each of 10 of these. [So, if you miss one you do not loose any credit]. **To earn these points you must actually contribute in a meaningful manner to the discussion, (i.e. indicating clearly that you have read the papers).** You won’t receive any points if you don’t participate.

Second, we will have one Zoom session Sept 9 to introduce ourselves to each other and to discuss several very short readings and an online film clip related to Covid-19 and brain/behavior development. You can also bring in other thoughts you may have on Covid-19 if you would like to share them. You will be given **2 points** for attendance here.

Third, we will have one Zoom session (Sept 30) during which Dr. Susan Kendell (MSU Biological Sciences Librarian) will be speaking with us about how to obtain information about behavioral/brain development and how to make some determination of the value of that information. Attendance here can earn you **4 points**.

Fourth, we will have 2 review sessions (October 26 and December 7) prior to each of two exams). You will be given 2 points for participation in each of these. [**4 points total**]

**5.Term paper and associated outline. [10 points for the outline, due October 19 at 8:00 p.m., and 85 points for the final paper, due December 14 at 5:00 p.m.]** Both to be deposited in a **D2L dropbox.**

**Term paper**

This assignment involves writing of a 10 page paper (double spaced with 1 inch margins, not including title page, reference list, or any figures or text that you might choose to quote (which you can only do with quotation marks and a clear indication of where the quote comes from). The first step is to choose a topic that you find particularly interesting. It also needs to be related to one of the general issues that we deal with in the first part of the course (before the first exam), but you need to choose a **far** more specific topic within that area to focus your paper on. Please check with us about the suitability of the topic before you get into it too deeply. **A Rubric with much more detail on expectations for, and grading of, the paper will be posted on D2L, and it also provides more information and examples of suitable topics.**

**Proposal/Outline of term paper**

A one page proposal for your paper should be turned in by **October 13 at 8:00 p.m.**. This should contain: (1) a brief (6-8 sentence) description of exactly what the topic is, and (2) an organized bullet point outline of what will be in a Review portion of your paper. A list of 3 of the references that you have read and that you will use in preparation of the paper should be presented on the next page. Your outline should be clear and thoughtfully written. We will provide you with feedback on this to help when you write the final paper; if you would like to improve your grade on this assignment you can use this feedback to revise it and then hand it back within 1 week of when we have returned it to you.

**Grading scale:**

There are 355 points possible [see above for breakdown] We will use a standard “straight” grading scale, such that: 90% = 4.0; 85% = 3.5; 80% = 3.0; 75% = 2.5; 70% = 2.0; 65% = 1.5; 60% = 1.0; <60%= 0.0

**Class schedule**

**NOTE: SEE FOLDERS ON D2L FOR EACH OF THE 6 UNITS TO FIND THE ASSIGNMENTS THAT MUST BE FINISHED BY THE DATES INDICATED BELOW**

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**Unit #1: September 2-9**

*September 2: ZOOM Introduction*

September 7: Assignments to have finished

Submit Basic information form

Readings + film

*September 9-ZOOM Introductions and Discussion of Covid-19 and neural development*

**Unit #2: Sept 10-16- Neural development**

September 14: Assignments to have finished

PP Lecture- Neural development #1

PP lecture-Neural development #2

Reading + Film

\*Post your commentaries on D2L and be prepared for discussions

*September 16: ZOOM Discussion of readings+ film*

**Unit #3: September 17-October 7-Nature/nurture-some history and principles**

September 21: Nature/Nurture I-Assignments to have finished

PP Lecture- Nature and Nurture- Some history

Readings + Film

\*Post your commentaries on D2L and be prepared for discussion

*September 23: ZOOM Discussion of readings + film*

September 26 Nature/Nurture II-Assignments to have finished

PP lecture-Nature and Nurture- Moving forward

Readings + Film

\*Post your commentaries on D2L and be prepared for discussions

*September 28: ZOOM Discussion of readings + film*

***September 30: ZOOM Special guest-****Dr. Susan Kendell-MSU Biological Sciences Librarian* Presentation/discussion on how to obtain the most reliable information.

October 5: Nature/Nurture and sensitive periods- Assignments to have finished

PP lecture- Sensitive periods

Readings + film

\*Post your commentaries on D2L and be prepared for discussion

*October 7: ZOOM Discussion of readings+ film*

**Unit #4: October 8-21-Maternal effects and epigenetics**

October 12: Maternal effects- Assignments to have finished

PP lecture-Maternal effects

Readings and film

\*Post commentaries on D2L and be prepared for discussions

*October 14: Zoom discussion of readings and films*

October 19: Epigenetics-Assignments to have finished

 PP lecture- Sensitive periods

Readings + film

\*Post your commentaries on D2L and be prepared for discussions

*October 21 Zoom Discussion of readings and film*

**October 26: Review**

**October 28: Exam**

**Unit #5: October 29-November 18-Hormones, sex differences and development**

November 7: Basics of perinatal hormones and behavior-Assignments to have finished

PP Lecture-Perinatal hormones-some general rules

PP Lecture- Perinatal hormones-some exceptions to the general rules

Readings and film

\*Post your commentaries and be prepared for discussions

*November 9 Zoom Discussion: Perinatal hormones and human behavior*

November 10: Development of gender identity-Assignments to have finished

PP Lecture-Gender Identity

Readings and film

\*Post your commentaries and be prepared for discussions

*November 11 Zoom Discussion: Development of gender identity-insights from psychobiology*

November 16: Development of sexual orientation-Assignments to have finished

PP Lecture-Sexual orientation

Readings and film

\*Post your commentaries and be prepared for discussions

*November 18 Zoom Discussion: Development of sexual orientation-insights from psychobiology*

**Unit #6: November 19-December 2-Development of rhythms and sleep**

November 23: Development of circadian rhythms-Assignments to have finished

PP Lecture-Development of rhythms

Readings and film

\*Post your commentaries and be prepared for discussions

*November 25 Zoom Discussion: Development of circadian rhythms*

November 30: Development of sleep-Assignments to have finished

PP Lecture-Sleep

Readings and film

\*Post your commentaries and be prepared for discussions

*December 2 Discussion: Development of sleep*

**December 7: Review**

**December 9: Exam**

**PAPERS ARE DUE BY 5:00 p.m. on DECEMBER 14**

**NOTE: THERE WILL BE NO FINAL EXAM**

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**SOME OTHER ISSUES**

**General comments**

We are here to help you learn and are very happy to discuss with you a host of issues related to developmental psychobiology, and to behavioral biology more generally. We would also like to help students that are having difficulties with the class and might like general advice about how to study or write more effectively. So, please let us know if you would like to get together to talk (via Zoom or phone)!

**Regarding Covid-19**

We have been asked to remind you of a number of precautions that you should all be taking. For the sake of your friends, family and others, I would like to encourage you to self-isolate, i.e. quarantine yourself, should you experience any COVID-19[symptoms](https://urldefense.com/v3/__https%3A/www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html__;!!HXCxUKc!jwTMURV8U1OPWpZ3TQHkH3y868OxxD8HIARSuf0d2UIZIzMHVSTwWPEPnER3$), tested positive for COVID-19, or have been potentially[exposed](https://urldefense.com/v3/__https%3A/www.cdc.gov/coronavirus/2019-ncov/php/public-health-recommendations.html__;!!HXCxUKc!jwTMURV8U1OPWpZ3TQHkH3y868OxxD8HIARSuf0d2UIZIzMHVSTwWMBYMlhm$) to someone with COVID-19. **I will make accommodations should this happen, e.g. allowing you to take make-up exams after the self quarantine is over, or after medical professionals say that you are not infectious or sick with it.** You will find other MSU guidelines related to Covid-19 at the end of this syllabus. Please read them and follow them!

**Honor and ethics**

“The Spartan Code of Honor” is a very nice item that MSU students have written for each other: “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.” You may learn more here: <http://splife.studentlife.msu.edu/spartan-code-of-honor-academic-pledge>

If you would like to understand some of the issues related to that “code of honor” in the context of student papers and the possibility of plagiarism you can go to this site: <https://msu.edu/unit/ombud/academic-integrity/plagiarism-policy.html>. One of the things indicated on that site is that students are the ones responsible for knowing what plagiarism is (beyond the fact that it’s bad). The consequences of it may be severe (e.g. failing the course…etc.). If you have questions about this please let me know, or visit this site: <http://splife.studentlife.msu.edu/regulations/general-student-regulations>.

**Limits to confidentiality**

You 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 based on external legal obligations, or that relate to the health and safety of MSU community members and others. As the instructor, I must report the following information to other University offices 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
* 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 or not. You may learn more here: <https://oie.msu.edu/resources/mandatory-reporters.html>

**Observing a major religious holiday**

You may make up course work missed in order to observe a major religious holiday if you make arrangements one week in advance.

## **Accommodations for Students with Disabilities**

Accommodations for Students with Disabilities:   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.**You can learn more here: <https://www.rcpd.msu.edu/download/75>

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MSU guidelines related to Covid-19:

Face coverings must be worn by everyone (including all faculty, staff, students, vendors, and visitors) indoors and outdoors while on property owned or governed by MSU and while participating in MSU-related or MSU-sponsored activities. If you have a medical condition that may prevent you from safely wearing a face covering, you should contact [MSU’s Resource Center for Persons with Disabilities](https://www.rcpd.msu.edu/) to begin the accommodation process.

 Face coverings should (a) be non-medical grade to maintain supplies for health care use, (b) fit snugly against the side of your face, (c) cover your nose and mouth, (d) be secured with ties or ear loops, and (e) allow for breathing without restriction. Cloth face coverings should only be worn for one day at a time, and they must be properly hand washed or laundered before subsequent use. Face coverings may vary (for example, disposable non-medical face coverings or neck gaiters are acceptable).