**Psychobiology of Behavioral Development**

**Psychology 409, Fall 2021**

**Monday/Wednesday 2:40-4:00**

**Psychology Building Room 120**

**Instructor**

Laura Smale, Psychology Department

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**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”, including “maternal effects” and epigenetic processes. At this point, we will turn to examples of how biological processes may influence development, by focusing on sex-related behavior. In the last part of the course we will go into some depth on the development of biological rhythms and sleep, two processes 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 much of it will involve principles that have emerged and been developed out of research on non-human animals. We will spend considerable time on the history that led to the principles that still guide research into developmental psychobiology.
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 or misinterpreted. This will involve finding, reading and critically evaluating original research publications.
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 and a term paper.

**Assigned readings will include:**

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

**Class schedule**

September 1 Introductions

September 6 NO CLASS

September 8 Lecture: Neural development #1

September 13 Lecture: Neural development #2

*September 15 Discussion: Neural development at birth and again at adolescence*

September 20 Lecture: “Nature” and “Nurture”- Some history

September 22 *Discussion:* “Nature” and “*Nurture”- A history of conflicting ideas*

September 27 Lecture: “Nature” and “Nurture”- Moving forward

*September 29 Discussion: “Nature” and “Nurture”- Moving forward*

October 4 Lecture: Sensitive periods in development

*October 6 Discussion: Sensitive periods*

October 11 Lecture: “Maternal effects”

*October 13 Discussion: “Maternal effects”*

October 18 Lecture: Epigenetics

*October 20 Discussion: Epigenetics*

**October 25: NO CLASS**

**October 27 EXAM #1 [Covering material from September 8 through October 20]**

November 1 Special guest: Dr. Susan Kendell, MSU Biological Sciences Librarian, on how to identify and obtain the most reliable information

November 3 Lecture: Perinatal hormones-some general rules and exceptions to them

**FRIDAY NOV 5 BY 8:00 p.m.: OUTLINE OF TERM PAPER IS DUE**

*November 8 Discussion: Perinatal hormones and human behavior*

*November 10 Discussion: Development of gender identity-insights from psychobiology*

November 15 Lecture: Development of sexual orientation-insights from psychobiology

*November 17 Discussion: Development of sexual orientation-insights from psychobiology*

November 22 Lecture: Development of circadian rhythms

*November 24 Discussion of progress/problems with your term papers*

 *November 29 Discussion: Development of circadian rhythms*

December 1 Lecture: Development of sleep

*December 6 Discussion: Development of sleep*

December 8 **EXAM #2 [Covering material from November 1 through December 6]**

**December 15 PAPERS ARE DUE BY 8:00 p.m.**

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

**D2L** will be used to post several things: Power Point files, readings, study questions, a rubric for term papers and additional miscellaneous but important information. D2L is also where you will deposit assignments.

**Finally, all exams will be held online, via D2L. Therefore, this course requires access to high-speed internet.** There is a tutorial where you can learn more about D2L on the banner on the right side of its opening page.

**ASSIGNMENTS AND GRADES**

Grades will be based on participation in class discussions of assigned readings, written commentaries associated with those readings, an outline of a term paper, the term paper itself, two exams and attendance. Details are presented below.

**1.Exams:** [**110 points total**] There will be two exams (55 points each).

One on October 27 and the other on December 8 (the last day of class). **There will be no final exam.** The exams will cover lectures and anything else that might be presented to accompany them (e.g. material from film clips, web pages…etc.), as well as readings assigned to go with lectures; these are indicated by \*\*\* on the reading list. Exams will **not** include questions from the readings assigned for the 11 discussion periods. 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).

A make‑up exam will be granted if there is a documented medical, religious, or legal reason for missing the exam, and if that is provided to us before the time/date of the exam. [The make-up exam will be different from the primary one.]

**2.Class discussion and commentaries:** [**80 points (2 commentaries on each of 1 discussion days each worth 3 points AND 2 points for participation in each of 10 Discussions)]**

Twelve class periods will be focused primarily on discussions of 2-4 published papers (posted on D2L). One discussion/commentary grade will be counted as extra credit, and your lowest discussion/commentary grade will be dropped. **Prior to each of these class periods you will need to read all of these papers, choose two of them and write a 1-page commentary on each of those two papers. To reiterate, you should be turning in two 1-page commentaries (double spaced with 1 inch margins) in preparation for each discussion day, one for each paper you choose out of the assigned discussion papers; if only two have been assigned then you must write commentaries on each of them.** These commentaries need to be submitted in a dropbox on D2L by 2 days before the day of the associated discussion.

These 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, (though it does need to be clear from the commentary that you have actually read and thought about the paper). [Some of these papers include parts that are highly technical, such as details of molecular techniques or neuroimaging processes, and I do not expect you to read those details.] **Your grade for the commentaries will be based on whether your writings show that you have read and thought about the articles [with the exception of highly technical details noted above].**

Grades will be assigned for each commentary 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 COMMENTARIES YOU MUST ALSO PARTICIPATE IN THE DISCUSSION ASSOCIATED WITH THAT COMMENTARY (SEE BELOW).**

On these 11 discussion days we will split the class into small groups to discuss one or more of the articles for 15-20 minutes. If the article is an “empirical” one (the first, and most detailed, description of a research study that has been published) then the group will discuss at least these five details about it: 1) key parts of the background 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 or integrate several research studies into a more general paper. The discussion of these will be more open, not structured in the usual way. At this point, one group will take **8-10 minutes** to verbally present the basic conclusions that members of the group have reached about each of the questions noted above; (individuals may have arrived at different conclusions, which is perfectly fine). The whole class will then discuss issues associated with the article. Active contribution to this part of the discussion will earn you **2 points**; even if you only speak up once (on the topic) you will receive these points. You will not know ahead of time which article (or articles) your group will be asked to focus on. **VERY IMPORTANT: TO RECEIVE ANY CREDIT FOR THE DISCUSSION YOU MUST SUBMIT YOUR COMMENTARY.**

**[So, overall, on each of 10 discussion days 3 points can be earned for each of your two written commentaries and 2 points can be earned for contributing to the discussion.** There will be 11 discussion days and the one on which you receive the fewest points will be automatically dropped from your score, which will then be based on the other 10). There is no way to make up credit for a discussion period that you have missed (or the associated commentaries) but if you have been unable to attend one of these class periods (e.g. if you have been ill) we will simply base the grade on the other 10.**]**

**3.Term paper and associated outline. [8 points for the outline, due November 5 at 8:00 p.m., and 84 points for the final paper, due December 15 at 8:00 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 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 submit it to D2L within 1 week of when we have returned it to you.

**4.Attendance [18 points (1.5 points for each of 12 class periods)]**

You can earn 1.5 point for attendance at each of the 12 class periods composed of lectures (apart from the first day of class). Specifically, this is: September 8, 13, 20, 27 and October 4, 11, 18 and November 1, 3, 15, 22 and December 1).

**Overall Grade**

You will have an opportunity to earn **a total of 300 points** in this course:

 110 Exams (2 x 55 points)

80 Commentaries + discussion (10 x 8 points)

8 Term paper outline

84 Term paper

 18 Attendance/participation

Total = 300 points possible

**Grading scale:**

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

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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 talk and we will find a time to do that.

**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>.

**Covid-19-MSU guidelines**

As of August 5, masks are required indoors on campus for all individuals. Regulations that went into place August 5 also require COVID-19 vaccination for all students, faculty, and staff by Aug. 31. “That means being either fully vaccinated or having at least one dose and on your way to full vaccination.” 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.

**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.

**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.**