**PSYCHOLOGY 209H**

**BRAIN AND BEHAVIOR**

Spring 2022 M/W 2:40-4:00

On-line first then Rm. 107 Berkey Hall

**Instructor:**

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**Readings will include:**

1. “The Minds Machine, Foundations of Animal Behavior”, by NV Watson and SM Breedlove, 2021, 4th Edition, Sinauer Associates. Available at the Student Book Store
2. A range of PDFs and Web sites to be posted on D2L
3. Research publications that you will track down yourselves via the MSU library system

Extra: There is a companion Web site associated with your textbook for those of you interested in learning more: <http://www.biopsychology.com/news/index.php?book=MM>. It is a great way to find out about the newest research findings on topics in behavioral neuroscience that you may be especially interested in. [These readings are not required.]

**Objectives:**

I. The overarching goal is to provide you with a basic understanding of relationships between the nervous system and behavioral and mental states, healthy and disordered. This will involve : (1) A very general introduction to what behavioral neuroscience is all about, and then some basics of (2) the structures of the nervous system and a sampling of the functions associated with them, (3) how single cells within those structures function and form networks within and between those structures, and the chemistry of how cells communicate within those networks, (4) brain and behavior evolution, (5) how hormones can influence our experience and our behavior and how these processes can differ across individual, (6) basic systems regulating hunger and feeding, sleep and rhythms, (7) emotion, aggression and some of the ways that psychopathologies can arise from disorders of the brain and (8) how we form and retrieve memories, how we think and how we use language to communicate with others.

II. A second goal is to learn something about a range of controversial issues, including some that have involved social policies that can be informed by a better understanding of the nervous system. This will involve reading, discussing, and thinking critically and assessing information that comes from a variety of sources and is written primarily for the general public.

III. A third goal is to gain a more direct, and in depth, appreciation of how research is done and how data can be analyzed and interpreted. Here, you will also be learning how to find, access and critically evaluate original research, and how to communicate what you find to others, e.g. your fellow students.

**SCHEDULE**

\*\* Indicates days devoted to discussion of special topics (described below)

## Indicates days for group presentations

**CLASS BEGINS ON-LINE:**

January 10 Introductions

January 12 Cells and structures-I

Chapter 1

January 17 No Class

January 19 Cells and structures-II

Chapter 1

January 24 \*\*Looking into a living brain: What can neuroimaging tell us, and how should and shouldn’t it be used?

Chapter 1 + Reading List

January 26 Neurophysiology

Chapter 2

**CLASS CHANGES TO IN-PERSON-Rm. 107 Berkey Hall:**

January 31 The chemistry of behavior

Chapter 3

February 2 \*\* Drugs to adjust brain chemistry and behavior

Chapter 3 + Reading List

**February 7 EXAM 1** [Covers material from Jan. 12 through Feb. 2]

February 9 Special guest: Dr. Susan Kendell, MSU Biological Sciences Librarian, on how to identify and obtain the most reliable information

February 14 Evolution, brain and behavior

February 16 Hormones and sex: Basics

Chapter 8

February 21 \*\*Gender identity

Chapter 8 + Readings List

February 23 \*\*Sexual orientation

Chapter 8 + Reading List

February 28 Homeostasis

Chapter 9

March 2 Biological rhythms Dr. Antonio Nunez

Chapter 10

**March 7 Spring break**

**March 9 Spring break**

March 14 The biology of Sleep

Chapter 10

March 16 Sleep disorders

Chapter 10

**March 21 EXAM 2** [Covers material from Feb. 9 through March 16]

March 23 \*\*Neuroscience, aggression, and culpability

Chapter 11 + reading list

March 28 Psychopathology

Chapter 12

March 30 \*\*Psychopathology: Mental illness and psychosurgery

Chapter 12 + Reading List

April 4 ## Group presentations-I

1.The gut and the brain: Talking to each other?

2.The biology of friendliness: What do dogs have to offer?

April 6 ## Group presentations-II

3.The biology of empathy: Lessons from mice?

4.Social dominance and the brain: More lessons from mice?

April 11 \*\*Memory: The case of HM

Chapter 13 + Reading List

April 13 Memory: Beyond HM

Ch. 13

April 18 Attention and consciousness

Chapter 14

April 20 Language and hemispheric asymmetry

Chapter 15

April 25 What can and can’t we learn from non-human animals about the biology of our mental processes and behavior?

**April 27 EXAM 3** [Covers material from March 23 through April 25 (but will not include material from student presentations)]

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

**Review sessions will be held via Zoom prior to each of the 3 exams:**

1.February 4, 3:00

2.March 18, 3:00

3.April 25, 5:00

**For the first 3 weeks of the semester, this course will be taught online.**

**Zoom** will be used for lectures and discussions during the first 3 weeks of the semester.

**D2L** will be used for several things throughout the semester. You will find readings, study questions, Power Point files and additional miscellaneous but important information on D2L. It is also where you will deposit a variety of things including assignments, and where you will receive feedback on them. Finally, all exams will be held online, via D2L.

**ASSIGNMENTS AND GRADES**

Taken together, your work will be assessed via (1) three essay exams, (2) 6 commentaries on papers and Web sites and participating in discussions of these materials, and (3) working in small groups to present and evaluate recent research on one of several topics in psychobiology. More information about each of these is presented below.

**I. Three Exams (140 points total)**

There will be three exams in this course. The first will be worth 40 points and the second and third will be worth 50 points each. Each exam will test your knowledge and comprehension of material covered in class and in assigned readings and Web sites. Questions will ask for short answers or essays (1/4-1 page). Study questions to help with preparation for exams will be provided at least 1 week before the exam. A make‑up exam (different from the primary one) will be granted in the case of a documented medical reason or a religious holiday. The exams will be online, but each of you MUST write your own answers to these questions. [Working together to learn is encouraged; working together to avoid learning by having others provide answers for you is not and will be treated seriously].

**II. Commentaries (6 commentaries x 5 points each = 30 points, to be deposited in D2L dropboxes within 24 hours of the class period during which they will discussed)**

Seven class periods, indicated with **“\*\*” on the class schedule**, will be focused primarily on discussions of Web sites and/or published papers posted on D2L, along with dates on which they will be discussed. Most of the topics involve controversies at the interface of societal issues and behavioral neuroscience. Some of the articles/web sites assigned for a given day are written by people that have a strong point of view on a controversial issue in question, and some might have arguments/interpretations that may be flawed, (and some may simply not provide information that would be needed to assess the presentation of issues in them). Some of these readings were done **by** experts in the field and some **by** non-scientists, and some will be written **for** scientists, and some **for** non-scientists. **Prior to each of these sessions you will each need to read all of these and write 2 pages (total) of commentary on the ones indicated with an \* on the reading list; your commentary should be 2 pages total, double spaced with ½ inch margins).** (You also need to read the corresponding chapter of the textbook before these sessions, but you do not need to include this in your commentary). Your commentaries should not be simply summaries of the readings. They should be thoughtful discussions of some of your reactions to the reading. For example, were the author’s ideas interesting, and **why do you feel that way**? Was the author credible, or not, and **why** do you feel that way? Did the reading change your opinion about the issue, and **why**? Do you see problems with what the author is saying, flaws in the reasoning, or limitations of some other sort, etc… It needs to be clear from the commentary that you have done the readings, but it should not summarize them. **You can earn 5 points for each of six of the commentaries.** More specifically you will be given 5 points if it is well written and clear from the commentary that you have put some genuine thought into the issue, 3-4 points if the writing is not polished or the ideas are not presented in a clear well-developed manner, or the reasoning is somewhat superficial, 1-2 points if it is carelessly written and/or it is not clear from the commentary that you have read all of the material that was assigned. If there is no commentary, then no points will be given. **NOTE: IN ORDER TO GET CREDIT FOR THE COMMENTARY YOU MUST ATTEND THE CORRESPONDING CLASS DURING WHICH WE WILL DISCUSS THE ISSUES**.

There will be 7 opportunities to submit your commentaries and attend the associated discussion period. The one on which you receive the fewest points will be automatically dropped from your score, which will then be based on the other 6. There is no way to make up credit for a commentary, as the assignment requires attendance at the associated discussion period 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 6.

Note: On the days that we discuss these readings (indicated by the \*\* on the syllabus) you will be put in groups (4-6 students/group) to go over issues that you have raised in your commentaries as well as questions; you may be presented with some other questions to address in these discussions as well. The full class will then reconvene and we will have a general class discussion during which the different groups highlight their positions and the reasoning behind them.

**III. Presentation (1 x 30 points)**

Each of you will work in a group of 4-5 students to develop and give a presentation on one of the 4 issues indicated on the schedule by “##”. These involve recent developments in behavioral neuroscience, such as what some see as evidence that rodents experience empathy. These are issues that are not covered in detail in the textbook. WEB sites that provide some information on the topic can be found on D2L. Your job is to delve into the topic much more deeply, by finding and reading “primary research articles” that describe and discuss original research that has been done on the issues, as well as articles and/or Web sites that present work on the issue to the general public. You will also assess the validity of the positions taken by the authors. You will work with other members of your group to integrate what you have leaned and give a 25 minute presentation to the rest of the class and then lead a discussion of the issues that you have presented. **MORE DETAILS OF THIS ASSIGNMENT CAN BE FOUND ON D2L.**

**Overall Grade**

You will have an opportunity to earn **a total of 200 points** in this course:

140 Exams (3 exams: 40, 50 and 50 points for the 1st, 2nd and 3rd, respectively)

30 Commentaries (6 commentaries x 5 points each).

30 Presentations (1 total)

There will also be an optional assignment that can earn you extra credit. This will require attendance Feb. 9 and will be described at the end of that class period.

Final course grades will be determined according to a standard grading scale: >90% total points=4.0, 85-89%=3.5, 80-84%=3.0, 75-79%=2.5, 70-74%=2.0, 65-69%=1.5, 60-64%=1.0 and <60%=0.

**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 brain and behavior, and to behavioral biology more generally. We would also like to help anyone that is 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 meet (via Zoom) to talk.

**Covid-19-MSU guidelines**

Masks are required indoors on campus for all individuals as are COVID-19 vaccinations, for all students, faculty and staff. 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 <https://www.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.**