

***Psychology 387: Behavioral Neuroscience
Global Campus, Online Session: Summer I 2018***

Course Syllabus

Instructor's information

Yannick Marchalant, Ph.D.

Health Profession Building, room 2181

Central Michigan University

989-774-6492

989-854-6993

march1y@cmich.edu

Office hours: Wednesday and Fridays 4-6PM, or by appointment (phone or skype possible)

Faculty page: <http://www.cmich.edu/colleges/chsbs/Psychology/Faculty/Pages/Yannick-Marchalant.aspx>

Laboratory page: <http://www.cmich.edu/colleges/chsbs/Neuroscience/NAAL/Pages/People.aspx>

Prerequisites:

PSY100, BIO 101, BIO 105, BIO110, BIO 151, HSC 211

Textbook:

Kalat, James W., Biological Psychology (12th Ed), Cengage Learning, Belmont, CA.

ISBN: 978-1-305-10540-9

Course description and objectives:

This course will provide an overview of the neurological processes underlying human and animal behavior. It will introduce notions on the neurobiology of sensation, movement, motivation, emotion, sleep, learning, disorders, and recovery mechanisms. ([UP Group IV-A](#))

After completion of this course, you will be able to:

1. Give a basic description of neuronal functions as well as describe the major anatomical groups of brain structures and their putative functions.
2. Have a general understanding of various technics and approaches used to explore the brain and how they are used to link physiology of the brain to behavior.
3. Discuss potential controversial problems surrounding the methodology (e.g., ethical considerations of animal use...)
4. Elaborate on the current state of knowledge on the basic neurological mechanisms underlying major human behaviors (e.g., learning and memory, emotion...).

Course methodology:

The course will be taught using the following format:

- *Online PowerPoint lecture notes and study guides (one chapter per week)* Online PowerPoint lecture presentation and study guides will be provided. Power Points will be available with or without narrations; not all material will be supplemented with a narrated audio track presented.
- *6 online discussion board, every other week, each worth 3% (or 7 pts each.) of the final*

- grade*. One different topic per week will be provided.
- Nine minor quizzes each worth 2.5% (or 6 pts. each) of the final grade. They will include multiple choice and true/false questions.
 - Three major quizzes each worth 15% (or 35 pts. each) of the final grade. They will include multiple choice and essay questions.
 - Three scientific journal article critique worth 4.5% (or 12 pts. each) of the final grade. The critique will summarize the objectives, the methodology, the key results, the major conclusions, and strengths and weaknesses of the article. **The journal article summary must be typed using Word or compatible program, submitted through Blackboard and must be 2 pages long maximum, double-spaced, using Times New Roman 10 points font.**

IMPORTANT REQUIREMENTS!!!: The course is delivered online using Blackboard, the Course Management System at Central Michigan University. The technology requirements for the course have been designed to comply with the Senate's Distance Learning Standards and Guidelines. Students must make sure that they have access to a computer (with an Internet connection, an email account as well as a functional Webcam). Communication with faculty via Internet is part of the required course interactions (discussion boards, emails) and over the telephone if necessary. Central Michigan University Online staff can help students throughout the term of this course (If the instructor is happy to help whenever possible, he is not here, and not competent ;-) to fix material-related issues...).

To make sure that your equipment will not cause you major issues during the class, it is ***mandatory to perform the following Pre-Class Assignment:***

- Run the [system requirement test](#). Call the CMU IT Help Desk at 800-950-1144 ext. 3662 or 989-774-3662 if you experience any technical difficulty.
- Download and install the [LockDown Browser](#) programs
- Read or watch [Blackboard tutorials](#)

Course Outline and Assignments:

!!!ALL DEADLINES ARE 11.59PM Eastern Standard Time ON THE MENTIONED DATE!!!

Pre-Class Assignments:

1. Study the course syllabus and complete the syllabus quiz.
2. Post a Self-Introduction (name, location, occupation...) on the Discussion forum.

1) Week 1(Monday 5/21–Sunday 5/27)

Chapter 1

- a. Minor Quiz #1 over Chapter 1 (due Sunday)
- b. Discussion Board #1 main post (due Wednesday)
- c. Response post to fellow student/s (due latest Sunday)

2) Week 2(Monday 5/28– Sunday 6/3)

Chapter 2

- a. Minor Quiz #2 over Chapters 2, (due Sunday)
- b. Journal Article #1 (due latest Sunday)

3) Week 3(Monday 6/4– Sunday 6/10)

Chapter 3

- a. Minor Quiz #3 over Chapter 3 (due Sunday)
- b. Discussion Board #2 main post (due Wednesday)
- c. Response post to fellow student/s (due latest Sunday)

4) Week 4 (Monday 6/11- Sunday 6/17)

Chapter 4

- a. Major Quiz #1 over Chapters 1, 2, 3 and 4 (due Sunday)

5) Week 5 (Monday 6/18–Sunday 6/24)

Chapter 5

- a. Minor Quiz #4 over Chapter 5 (due Sunday)
- b. Discussion Board #3 main post (due Wednesday)
- c. Response post to fellow student/s (due latest Sunday)

6) Week 6 (Monday 6/25– Sunday 7/1)

Chapter 7

- a. Minor Quiz #5 over Chapters 7, (due Sunday 3/4)
- b. Journal Article #2 (due latest Sunday 3/4)

7) Week 7 (Monday 7/2– Sunday 7/8)

Chapter 8

- a. Minor Quiz #6 over Chapter 8 (due Sunday)
- b. Discussion Board #4 main post (due Wednesday)
- c. Response post to fellow student/s (due latest Sunday)

8) Week 8 (Monday 7/9- Sunday 7/15)

Chapter 9

- a. Major Quiz #2 over Chapters 5, 7, 8 and 9 (due Sunday 3/18)

9) Week 9 (Monday 7/16–Sunday 7/22)

Chapter 11

- a. Minor Quiz #7 over Chapter 11 (due Sunday)
- b. Discussion Board #5 main post (due Wednesday)
- c. Response post to fellow student/s (due latest Sunday)

10) Week 10 (Monday 7/23– Sunday 7/29)

Chapter 12

- a. Minor Quiz #8 over Chapters 12, (due Sunday)
- b. Journal Article #3 (due latest Sunday)

11) Week 11 (Monday 7/30– Sunday 8/5)

Chapter 13

- a. Minor Quiz #9 over Chapter 13 (due Sunday)
- b. Discussion Board #6 main post (due Wednesday)
- c. Response post to fellow student/s (due latest Sunday)

12) Week 12 (Monday 8/6- Friday 8/10)

Chapter 14

- a. Major Quiz #3 over Chapters 11, 12, 13 and 14 (**due Friday**)
- b. Take the “end of course survey” sent to you from CMU Online via CMU email. You will receive a 2-point credit after taking the survey.

Post-Class assignment

You will receive and “end of course” survey and get 2 extra points after completing it.

Student involvement:

This course will require a significant involvement, notably time wise. We will be going through an entire 300 level neuroscience course in 12 weeks instead of 15. Thus, between reading, lectures, assignments etc., it is likely that this class will need around 10 hours minimum per week to excel. I understand that it may look like a decent amount of time to add to your schedules but as the expectations and objectives of online students are the same as face-to-face ones, it is not unreasonable. I am happy to give advices/help with learning approaches in this course as a little organization may be of great help on the long run!

Evaluation criteria:

Exam type	Percent of Total Grade	Total Points
Major Quizzes (3)	45% (3 x 15%)	100 points
Minor Quizzes (9)	22.5% (9 x 2.5%)	50 points
Weekly discussion board (6)	18% (8 x 3%)	40 points
Article Critique (3)	13.5% (3 x 4.5%)	30 points
TOTAL		220 points

Grading Scale:

Percentage	Points	Grade	Percentage	Points	Grade
Above 93%	Above 205	A	73-76.9%	161-168	C
90-93%	198-204	A-	70-72.9%	154-160	C-
87-89.9%	191-197	B+	67-69.9%	147-153	D+
83-86.9%	183-190	B	63-66.9%	139-146	D
80-82.9%	176-182	B-	60-62.9%	132-138	D-
77-79.9%	169-175	C+	Below 60%	Below 132	E

IMPORTANT REMINDER!

The Major Exams have to be completed on a student-provided computer and will require [Respondus Lockdown Browser and Monitor software](#). This software is free to use on your computer but keep in mind that before and during an examination, the use of a webcam will be necessary (it is used to record

completion of the examination and may require capture of a student photograph, proof of identification, and/or a scan of surroundings). If you do not own a webcam, please make sure to acquire one before final examination.

The Final Exam can also be taken using an approved proctor at their location. If you decide to use a proctor to complete your exams, (s)he must have the ability to download the software called [Respondus Lockdown Browser software](#) onto their organization's computer that you will use to take your exam on. If you choose to use a proctor, please contact CMU Proctor Office at 989.774.4461, to discuss the requirements your proctor must be able to complete.

As general advice:

When you take exams using the webcam option, you may run into problems if you have a poor internet connection. Below are some tips that will help you avoid internet connection problems.

* If possible, plug an Ethernet cable into the computer to ensure the best possible network connection/speed. Some laptops do not have an Ethernet port, but you can purchase an Ethernet to USB cable that will allow you to plug in. Otherwise, it's best to remain as close to the router as possible, if using WiFi.

* Shut down all other applications other than LockDown Browser. This will help reduce the bandwidth being used by other applications running in the background.

* Avoid repeated saving of questions. A request is sent to the LMS every time a question is saved. If there are lots of these in a short time and you don't have a lot of bandwidth, it's possible that all those requests will consume all the available bandwidth.

Late Assignments:

Assignments (Weekly Discussion Board responses and Weekly quizzes) are due no later than on the day at 11.59 PM EST. Scores will be posted under the Course Grades link in Blackboard by the following Sunday. **Late work will receive a 20% deduction per day and work more than three days late will receive a score of 0** unless other arrangements has been made with the instructor prior to the due date. Makeup exams will only be given in the case of emergencies (death of immediate family member, severe illness) with documentation and handled on a case-by-case basis.

Expectations:

As a student, you are expected to fully participate throughout the duration of this eight-week course. Active participation is expected and critical to the success of this online course.

Thus, the following is expected from students:

1. To complete the pre-assignments and tasks before the course starts.
2. To check e-mails and Announcements on Blackboard **daily**.
3. To submit their assignments online through Blackboard in a timely manner.
4. To actively participate in the weekly discussions on the discussion board.

As an instructor, you can expect the following from me:

1. To answer all your questions (discussion board, email etc.) in a timely manner (24

- hours during the week and at worst 48h if question is addressed over the week end).
2. To grade your work weekly and provide you necessary feedback where applicable.
 3. To assist you through one on one interaction or group chats/discussion boards to help you succeed in reaching your goals.

Because academic integrity is a cornerstone of the University's commitment to the principles of free inquiry, students are responsible for learning and upholding professional standards of research, writing, assessment, and ethics in their areas of study. **Written or other work which students submit must be the product of their own efforts and must be consistent with appropriate standards of professional ethics.** Academic dishonesty, which includes cheating, plagiarism and other forms of dishonest or unethical behavior, is prohibited. Further information about CMU's Academic Integrity Policy can be found at:
<https://www.cmich.edu/AcademicSenate/secure/Documents/Academic%20Integrity%20Policy%20-%20Editorially%20revised%20--2-08-17.pdf>

Moreover, each member of the Central Michigan University community assumes an obligation regarding self-conduct to act in a manner consistent with a respect for the rights of others and with the University's function as an educational institution. As guides for individual and group actions within this community, the University affirms the general principles of conduct described in the Code of Student Rights, Responsibilities and Disciplinary Procedures at
<https://www.cmich.edu/ess/studentaffairs/Pages/Code-of-Student-Rights.aspx>.

Weekly Online Discussion:

You are asked to participate in online discussion board each worth 3% (or 7 pts.) of the final grade (one topic every other week). For Discussion board evaluation, students are expected to post an initial message to answer the weekly discussion question(s) and reflections questions on the forum (provided by instructor), and start conversations with your peers. If the Book can be used as a reference for answering the question, **it is requested that you provide at least 2 sources of information other than the book per question (if the post has 2 parts, then it is at least 2 references per part of the answer, so at least 4 references total)**

Points are earned for answering the discussion question and for replying to fellow participants. Up to 7 points total will be earned for one post message answering the main discussion question and up to 2 post messages responding to another fellow participant's response. **Though you will only earn points for the discussion question and two peer responses, I encourage you to keep an ongoing discussion board dialogue about the weekly discussion topic.** Post your response to each discussion question no later than Wednesday of each week, and respond to your classmate's posting by the Sunday of the week.

Note that no points will be earned for discussion messages posted after the Sunday of each week. Post your responses no later than Sunday of each week at 11:59 p.m. U.S. Eastern Time. A rubric (see syllabus/outline section on blackboard) will be used to evaluate the quantity and quality of the discussion responses.

Because Discussion Board, emails, and chat rooms are the primary communication channels in online courses, there is a need for an "Online Etiquette". Please make sure you are aware of the followings when communicating with the instructor and/or fellow participants in the course:

- *Check before you post.* Please do check whether a similar question has been posted and answered to avoid duplicated messages and responses, remember there is always an FAQ section in the discussion board.
- *Be concise and use short paragraphs.* Being precise does not necessarily mean being lengthy but if your message is long, then break it into smaller paragraphs; it will greatly help the reader!
- *Do not write words in uppercase;* it means that you are YEALING and you may not mean it.
- *To avoid misunderstanding* when using jokes/sarcasm for example, please use emojis (:-, :-), :-(, :`-(, :-p, etc.). It will greatly help indicate your intentions ;-).
- *Respect others.* Like all communication and discussion occasions, use your professionalism and talk to others with respect. Moreover, people in this course may come from places around the world (like me...), so be respectful to other cultures and languages. Unprofessional or disrespectful message will be removed and the instructor may take more drastic actions (removing posting rights and grading penalties) if unacceptable behaviors persist.

Points can and will be deducted for failing to comply with this online communication policy. Serious violation may be reported and could result in further academic and/or disciplinary action.

SUPPORT SERVICES:

Library Research and Instruction Services

As a CMU student you have full access to the services and resources of the CMU Library. Reference librarians will help you find information on your research topic and answer other questions related to the library. The library's Documents on Demand office will obtain copies of the books and journal articles for you. Check out the library's website at <https://library.cmich.edu> for more information.

Reference librarian contact information:

1. By email: libref@cmich.edu
2. By online form: <http://libguides.cmich.edu/askalibrarianform>
3. By phone: (989) 774-3470.

Documents on Demand office contact information:

1. By email: docreq@cmich.edu
2. By online form: <https://illiad.cmich.edu/>
3. By phone: (989) 774-3022.

Writing Center

The CMU Writing Center is a free online service for all CMU students, providing help with grammar, citations, bibliographies, drafts, and editing of academic papers. Suggestions and feedback are typically provided within two business days. For additional information and to submit work, visit <https://www.cmich.edu/global/writingcenter/Pages/default.aspx>

Mathematics Assistance Center

The CMU Mathematics Assistance Center provides free tutoring in mathematics and statistics to students enrolled in select courses. Tutoring is available online and via telephone. To see what

courses qualify and to register with the Math Assistance Center, visit <http://global.cmich.edu/mathcenter/tutoring-request.aspx>.

ADA

CMU provides individuals with disabilities reasonable accommodations to participate in educational programs, activities and services. Students with disabilities requiring accommodations to participate in class activities or meet course requirements should contact Student Disability Services at (800) 950-1144, extension 3018 or email sds@cmich.edu, at least 4 weeks prior to registering for class. Students may find additional ADA information and forms at <https://www.cmich.edu/ess/studentaffairs/SDS/Pages/default.aspx>

Note to students: The student will need to provide to each of their instructors the "Notification Letter to the Instructor" outlining the accommodations the student is approved to receive.

BIBLIOGRAPHY:

Asmundson, G.J., Katz, J. (2009) Understanding the co-occurrence of anxiety disorders and chronic pain: state-of-the-art. *Depress. Anxiety*, 26(10), 888-901.

Avery, R., Startup, M., Calabria, K. (2009) The role of effort, cognitive expectancy appraisals and coping style in the maintenance of the negative symptoms of schizophrenia. *Psychiatry Res.*, 167(1-2), 36-46.

Avila, A., Reilly, M. P., Sanabria, F., Posadas-Sanchez, D., Chavez, C. L., Banerjee, N., Killeen, P., & Castaneda, E. (2009) Modeling operant behavior in the Parkinsonian rat. *Behavioural Brain Research*, 198, 298-305.

Aboitiz, F., Aboitiz, S., & Gardá, R.R. (2010). The phonological loop: A key innovation in human evolution. *Current Anthropology*, 51 (Suppl. 1), 555-565. (13).

Ackman, J. B., Burbridge, T. J., & Crair, M. C. (2012). Retinal waves coordinate patterned activity throughout the developing visual system. *Nature*, 490, 219-225. (5).

Agerbo, E., Monnsen, R. B., Wiuf, C., Pedersen, M. S., McGrath, J., Hollegaard, M. V., ... Pedersen, C. B. (2012). Modelling the contribution of family history and variation in single nucleotide polymorphisms to risk of schizophrenia: A Danish national birth cohort-based study. *Schizophrenia Research*, 134, 246-252. (14).

Akinola, M., & Mendes, W. B. (2012). Stress-induced cortisol facilitates threat-related decision making among police

officers. *Behavioral Neuroscience*, 126, 167-174. (11). Baker, E., Shelton, K. H., Baibazarova, E., Hay, D. F., & van Goozen, S. H. M. (2013). Low skin conductance in infancy

predicts aggression in toddlers 2 years later. *Psychological Science*, 24, 1051-1056. (11). Barrientos, R. M., Frank, M. G., Crysdale, N. Y., Chapman, T. R., Ahrensden, J. T., Day, H. E. W., ... Maier, S. F. (2011).

Little exercise, big effects: Reversing aging and infection, induced memory deficits, and underlying processes. *Journal of Neuroscience*, 31, 115778-11586. (4).

Bartz, J. A., Simeon, D., Hamilton, H., Kim, S., Crystal, S., Braun, A., Vicens, V., & Hollander, E. (2011). Oxytocin can hinder trust and cooperation in borderline personality disorder. *Social, Cognitive, and Affective Neuroscience*, 6, 556-563. (13).

Cannon, J. R., & Greenamyre, J. T. (2013). Gene, environment interactions in Parkinson's disease: Specific evidence in humans and mammalian models. *Neurobiology of Disease*, 57, 38-46. (7).

Casali, A. G., Gosseries, O., Rosanova, M., Boly, M., Sarasso, S., Casali, K. R., ... Massimini, M. (2013). A theoretically based index of consciousness independent of sensory processes and behavior. *Science Translational Medicine*, 5, 198ra105. (13).

Chang, S.-H., Gao, L., Li, Z., Zhang, W.-N., Du, Y., & Wang, J. (2013). BD gene: A genetic data base for bipolar disorder and its overlap with models schizophrenia and major depressive disorder. *Biological Psychiatry*, 74, 727-733. (14) *Neurobiology of Disease*, 57, 38-46. (7).

Dewan, A., Pacifico, R., Zhan, R., Rinberg, D., & Bozza, T. (2013). Non-redundant coding of aversive odors in the main olfactory pathway. *Nature*, 497, 486-489. (6).

Gazzaniga, M.S. (2005) Forty-five years of split-brain research and still going strong. *Nature Reviews Neuroscience*, 6(8), 653-9.

Goldstein, R. Z., & Volkow, N. D. (2011). Dysfunction of the prefrontal cortex in addiction: Neuroimaging findings and clinical implications. *Nature Reviews Neuroscience*, 12, 652-69. (14)

Jonsson, T., Atwal, J. K., Steinberg, S., Snaedal, J., Jonsson, R V., , • . Stefansson, K. (2012). A mutation in APP protects

against Alzheimer's disease and age-related cognitive decline. *Nature*, 488, 96-99. (12). Johnson, P. M., & Kenny, R J. (2010). Dopamine D2 receptors in addiction-like reward dysfunction and compulsive

eating in obese rats. *Nature Neuroscience*, 13, 635-641. (9, 10). Kas, M.J., Malsen, J.G., Olivier, B., Oppelaar, H., Holstege, F.C., de Graan, P.N. (2009) High-resolution genetic mapping of

mammalian motor activity levels in mice. *Genes Brain Behav.*, 8(1),13-22.

Klöppel, S., Henley, S.M., Hobbs, N.Z., Wolf, R.C., Kassubek, J., Tabrizi, S.J., Frackowiak, R.S. (2009) Magnetic

resonance imaging of Huntington's disease: preparing for clinical trials. *Neuroscience*, 164(1), 205-219

Roll, J. M., Mercado, P. Chudzynski, J., & Reilly, M. P. (2009). The contribution of post ingestive associations to alcohol self- administration. *The Psychological Record*, 59, 335-346. Stallen, M., De Dreu, C. K. W., Shalvi, S., Smidts,, & Sanfey, A. G. (2012). The herding hormone: Oxytocin stimulates in- group conformity. *Psychological Science*, 23, 1288-1292. (13).

Sterling; P. (2012). Allostasis: A model of predictive eregulation. *Physiology & Behavior*, 106, 5-15. (9).

Stevens, J. S., Jovanovic, T., Fani, N., Ely, T. D., Glover, E. M., Bradley, 8., & Ressler, K. J. (2013). Disrupted amygdale -prefrontal connectivity in civilian women with posttraumatic stress disorder. *Journal of Psychiatric Research*, 47, 1469-1478. (11).

Steinberg, L. {2013}. The influence of neurosence on US Supreme Court decisions about adolescents' criminal culpability. *Nature Reviews Neuroscience*, 14, 513-518. (4).

Suren, P., Roth, C., Bresnahan, M., Haugen, M., Hornig, M., Hirtz, D., . . . Stoltenberg, C., (2013}. Association benveen maternal use of folic acid supplements and risk of autism spectrum disorders in children. *Journal of the American Medical Association*, 309, 570-577. (14).

Takemura, H., Ashida, H., Amano, K., Kitaoka, A., & Murakami, I.(2012). Neural correlates of induced motion

perception in the human brain. *Journal of Neuroscience*, 32, 14344-14354. (5)

Vita, A., De Peri, L., Deste, G., & Sacchetti, E.(2012). Progressive loss of cortical gray matter in schizophrenia: A meta-analysis and meta· regression of longitudinal MR1 studies. *Translational Psychiatry*, 2, Article e190. (14).

Viviani, D., Charler, A., van den Burg, E., Robinet, C., Hurni, N., Abatis, M., ...Stoop, R. {2011}. Oxytocin selectively gates fear responses through distinct outputs from the central amygdale .*Science*, 333,

104-107. (11).

Vyadyslav, V. V., & Harris, K. D. (2013). Sleep and the single neuron: The role of global slow oscillations in individual cell rest. *Nature Reviews Neuroscience*, 14, 443-451. (8).

Wang, M., Garino, N. J., Yang, Y., Jin, L. E., Wang, J., Laubach, M., ... Arnsten, A. F. T. (2011). Neuronal basis of age-related working memory decline. *Nature*, 476, 210-213. (4).

Way, Z. A., Zaki, J., & Mitchell, J. P. (2012). Response of dorsomedial prefrontal cortex pre• diets altruistic

behavior. *Journal of Neuroscience*, 32, 7646-7650. (13).

Van Hedel, H.J., Dietz, V. (2010) Rehabilitation of locomotion after spinal cord injury. *Restor. Neurol. Neurosci.*, 28(1), 123-34.

**Central Michigan University
CMU Online**

Enrollment and Student Services

(800) 688-4268 or (989) 774-1129

Email cmuonline@cmich.edu

Website www.global.cmich.edu/CMUOnline

Drop/Withdrawal Policy: <http://global.cmich.edu/courses/drop-withdraw.aspx>

Online Resources for Students:

CMU Computer Help Desk

https://www.cmich.edu/office_provost/OIT/help/help_desk/Pages/default.aspx

Pre-Class Checklist

<http://www.global.cmich.edu/cmuonline/checklist.aspx>

Online Learning Resource Center

<http://www.global.cmich.edu/cmuonline/about/>