

**UNIVERSITY OF FLORIDA**  
**COLLEGE OF MEDICINE SYLLABUS**  
**NEUROSCIENCE**

**GMS6712 Biological Clocks in Neural Health and Disease (3 credit hours)**

Semester: Fall and Spring

Delivery Format: Online

Instructor Name: Susan Semple-Rowland

Room Number: N/A

Phone Number: 352-273-5095

Email Address: rowland@ufl.edu

Office Hours: Arranged by student request

Graduate Assistant: N/A

Preferred Course Communications: Email through Canvas

Prerequisites: GMS 6001 or consent of instructor. Designed for graduate students in MSc or PhD programs and Biomedical Graduate Certificate students.

### **Course Overview**

Biological Clocks in Neural Health and Disease (GMS6712) covers general concepts in the field of circadian biology, the molecular nature of the circadian clocks, the locations of these clocks in the body, and how these clocks control physiology and brain function. We will also explore current research findings on the roles that circadian clocks play in sleep, psychiatric, and neurodegenerative disorders and how the benefits of therapeutic treatments for many disorders may be maximized if their delivery is synchronized to the patient's circadian clocks.

### **Relation to Program Outcomes**

This course is a required course in the online Biomedical Neuroscience Graduate Master of Science program. Post-baccalaureate students, MSc and PhD graduate students, and working professionals who are interested in improving their understanding of how biological clocks impact normal and diseased brain function are also encouraged to enroll in this course. Interested advanced undergraduate students may inquire about registration.

### **Course Objectives and Goals**

Biological clocks affect all aspects of our lives and disruptions of their function can manifest in many ways, all of which compromise health. The significance of the circadian system is only now garnering the attention of research scientists and health care providers. At the end of this course you will be able to discuss and answer the following questions:

- What are the defining characteristics of circadian rhythms?

- What is our current understanding of the underlying molecular mechanisms that drive circadian oscillators?
- What is the role of the circadian clock in regulating sleep behavior?
- What is the relationship between the circadian clock and affective and degenerative disorders?
- Explain chronotherapeutics and whether this approach should be a central feature of future efforts to develop therapies for neural diseases.
- Explain how circadian biology affects the research you are carrying out or the research in your chosen research field.

## Instructional Methods

This is an online asynchronous course that has been created using CANVAS, an online course management system. The course is divided into 8 modules. Modules will be completed over 1-3 weeks depending on the content of the module.

Modules consist of assigned readings that come from the primary research literature, Voice Thread lectures, and self-check quizzes. All lectures are delivered using VoiceThread, an asynchronous application that allows students to post questions on individual slides and view the slides within the lectures multiple times either using a computer or using a cell phone app.

Each module concludes with a final assignment that consists of either two module tests (fact and essay), a Beyond-the-Basics discussion, or a short essay. During the final two weeks of the course students will complete a circadian project and a peer review of a peer's project. The Beyond-the-Basics discussion, essays, and circadian project will be evaluated using grading rubrics that will be provided as part of the assignment.

## *How to Succeed in this Online Course*

First, you need to be aware that online learning poses its own unique challenges. Because the online classroom is available to you 24 hours a day it is easy to delay work on course material, forget deadlines, and not put enough time in to perform well on exams. These challenges are exacerbated when a student is not a 'self-starter' or if does not possess good time management skills including use of reminders.

Unlike traditional instructional settings in which each student goes to the same class, the online setting enables every student to "create" the class of his or her choosing. In theory, this type of instruction should be more adaptable to a variety of learning styles; however, the reality is that some students have not yet determined what their optimal learning style is. Poor performance in online courses often can be directly linked to procrastination and poor time management (trying to do a week's worth of work just before the deadline). Rushing to complete assignments before the 11:59 pm deadlines on Sundays is NOT a good strategy because you forfeit your opportunity to ask questions about material you do not understand. Completing

the self-check quizzes during the work week can help you to pinpoint problem areas. In general, we are able answer questions you have about course content within 12-24 hrs of your posting of your question. Oftentimes, we answer much more quickly. Questions posted on Sundays may not be answered before you take your exams that are due at 11:59 pm on Sunday.

You are expected to adhere to the posted assignment deadlines; however, you should note that the assignments, quizzes, and tests associated with each Module can be completed at your own pace over the course of each week. The self-check quizzes associated with each module are due throughout the week. You should pay special attention to these deadlines since extensions to complete these quizzes will NOT be made. It is possible to request a deadline extension, but requests must be submitted to the instructor and approved prior to the deadline. The tests associated with each Module are due by 11:59 pm each Sunday. Finally, for the Beyond-the-Basics assignments your answers to the Thought questions will be due on Wednesdays at 11:59 pm and your responses to your peer's answers will be due on Fridays at 11:59 pm.

## Description of Course Content

### COURSE TOPICS

This is a 14-week course is offered during the Fall and Spring terms. The course is divided into 8 modules that will be completed every 1-3 weeks depending on the content of the module. The following table shows the module topics that we will cover in this course and the number of weeks that will be spent on each module.

Week(s)	Topics
1	Mod 1 - Course Introduction
2	Mod 2 - Biological Rhythms
3-4	Mod 3 - Circadian Clocks
5-6	Mod 4 - Circadian Clocks and Sleep
7-8	Mod 5 - Circadian Clocks and Affective Disorders
9-10	Mod 6 - Circadian Clocks and Neurodegenerative Diseases
11-12	Mod 7 - Circadian Clocks and Chronotherapeutics

## Course Materials and Technology

### Reading Materials

All reading assignments are assigned from the primary scientific literature.

## Required Technology

- **Laptop or desktop computer equipped with microphone and video camera.** The microphone and video camera can be used to post comments/questions to VoiceThread and will be used to create the VoiceThread projects. There are VoiceThread apps that are available for free for iOS and Android devices that can be used to view the VT and comment on them. I strongly recommend that you use a laptop or desktop computer when working on your VT projects for this course.
- **High speed, broad band internet connection such as DSL or cable.** A broadband Internet connection is strongly recommended. Slower connections may affect your ability to interact with materials in the course. It is also recommended that you try to submit course exams and assignments well ahead of the deadline since we have found that network speeds can significantly slow as the deadline approaches due to increased use.  
SPECIAL NOTE: Some users with satellite Internet service may find their online courses do not load quickly or consistently due to satellite network design issues.
- **Installation of LockDown Browser on computer that you will use for this course.** All quizzes and tests will be taken using LockDown Browser. The computer you use to take exams should be “hard wired” to the internet. WiFi is not stable enough to support a reliable connection.
- Canvas courses are best viewed using Chrome or Firefox. For specific questions about browser compatibilities and general questions about e-learning at UF please go to <https://wiki.helpdesk.ufl.edu/FAQs/E-Learning>.

For any technical issues you encounter with your course please contact the UF computing Help Desk at 352-392-4357. For Help Desk hours visit: <http://helpdesk.ufl.edu/> .

## Academic Requirements and Grading

### Assignments

- Readings are assigned from the primary literature.
- Recorded VoiceThread lectures that are accessible through the course website. Students are encouraged to post any questions they have about the lecture material directly within the lectures using the text, audio, or video + audio commenting features of VoiceThread. These questions will only be visible to the instructor. All questions will be answered by the instructor. The answers to questions that would benefit all students taking the course will be posted in the lecture so all students can view them.

- Several units contain a self-check quiz that has been designed to reinforce the lecture and reading assignments. Directions for these quizzes accompany each quiz. Pay particular attention to when the results of your quiz submission will be visible to you.
- Discussion boards are available for posting questions about the readings and general questions about the course and course materials. In addition, I have set up a discussion board containing links to stories about some of the newest developments in the field of circadian biology. I hope that you find these stories interesting and encourage you to post questions/comments about them.
- Online, scheduled synchronous meetings between students and the instructor will be available by request throughout the semester using Zoom Conferences.

## SELF-CHECK QUIZZES

**All modules include self-check quizzes. You will take each self-check quiz using LockDown browser.** The quizzes are designed to expose you to the types of questions that will appear on module tests and to help you identify the materials that you may not understand. The self-check quizzes consist of T/F, multiple choice, matching, fill-in-the-blank, and multiple answer questions. These quizzes are timed. The time allotted for each quiz is indicated in the quiz instructions and starts when you start the exam. *If you begin a 10 min quiz 5 minutes before it is due, you will have only 5 min to complete the quiz because it will automatically submit and close when it is due.* In order to receive credit for the self-check quizzes, you must complete them before the deadlines. You will not be able to take them after the deadline passes unless you have made arrangements with the instructor to extend your deadline.

When you submit your quiz, **you will be immediately given ONE opportunity to see your quiz score and the questions you answered incorrectly. Correct answers will not be provided.** In some cases, I have included an explanation of the question that you will see if you answered the question incorrectly. It is important that you take time to go through your graded quiz after you submit it since you will not be able to view your graded quiz. When you check your quiz, if you believe that you did not receive credit for a question that you think you answered correctly, please email me using the Canvas email system and indicate in your email which self-check quiz (unit #) and the question # you are concerned about. Include in your email an explanation of why you think you should receive credit for your answer. I will then evaluate your quiz and adjust your score if appropriate.

I review all of the submitted quizzes within 24 hours of the due date and give credit for answers that were marked incorrect because of misspelling.

## MODULE TESTS

**Modules 2 and 3 conclude with module tests that will be taken using LockDown browser.** The Module tests consist of two separately timed parts: the Module test and the Module Essay test.

The Module tests consist of T/F, multiple choice, matching, fill-in-the-blank, and multiple answer questions. The Module Essay tests consist of short essay questions.

Both of these tests will be timed and the questions will be randomized. Importantly, the time limit for completing the exam starts when you start the exam. *If you begin a 40 min exam 20 minutes before it is due (e.g. 11:59 pm), you will have only 20 min to complete the exam because Lockdown browser will automatically submit your exam when it is due.*

You will receive your score for the module test when you submit it but you will not be able to view the graded questions until I release the test results to the class. You will not receive a score for the module essay test until I grade them. I will post the corrected test results within 24 hours of the due date/time. You will then be given 24 hours to view each test and you will be able to see correct/incorrect answers and the comments I post on your tests.

**I strongly recommend that you take the ALL online quizzes and tests well before the time they are due which is 11:59 pm. The speed of the internet can significantly decrease between 10 pm and midnight. Thus, to avoid time delays during testing, you should try to complete exams during non-peak hours and of course avoid using Wifi connections.**

## **ESSAYS**

Student will write and submit four essays, one each for Modules 4-7. Students will choose their essay topic from 2-3 possible topics provided by the course director related to the information provided in Modules 4-7. A detailed rubric accompanies each essay assignment so that you will know how your essay will be evaluated.

## **ESSAY PEER REVIEWS**

In addition, students will conduct a review of a peer's essay for Modules 4-7 that will be evaluated using a grading rubric.

## **GRADING**

The scores obtained for the self-check quizzes (12 quizzes), the Module tests (4 tests), and the short essays (4) and essay peer reviews (4) are weighted as shown below to represent 100% of your course grade.

Your quizzes and module tests will be graded automatically when submitted. Essay questions will be graded by me. Grading rubrics will be used to evaluate both the short essay assignments and the peer reviews. You will be given the rubrics ahead of time so that you will understand what is required to successfully complete these assignments and how they will be evaluated.

The self-check quizzes are graded automatically so it is important that you view your results immediately after submitting these quizzes. If you believe that you did not receive credit for a question due to either a spelling error in the answer you entered or for another reason, send me an email using the Canvas email system and describe in your email the self-check quiz (unit #), the text of the question you are concerned about (do not just indicate question number, since they are scrambled for each student), and why you think you should receive credit for your answer. I will then evaluate your quiz and adjust your score if appropriate.

Students are expected to complete all assignments by the deadlines found in the online course syllabus. Students should carefully examine the auto-generated Canvas course syllabus that lists the specific assignments associated with each module and the dates/times that these assignments are due. **It is important to make a note of due dates for the various quizzes, tests, and assignments since they vary across modules.**

There will be no deadline extensions for completion of a module unless an extension is requested by the student and granted by me (see Exam Policy below). Failure to submit a module assignment, quiz, test, or the final project by the course deadline will be recorded as a zero.

### Weighting of Course Assignments

Assignment type	Weighted % Final Grade
Self-check quizzes (12)	15%
Module Tests (4)	35%
Short Essay (4)	40%
Essay Peer Reviews (4)	10%

### GRADING SCALE

Percentage of total points earned	Letter Grade	Grade Points
93-100	A	4.0
90-92	A-	3.67
87-89	B+	3.33
83-86	B	3.0

80-82	B-	2.67
77-79	C+	2.33
73-76	C	2.0
70-72	C-	1.67
67-69	D+	1.33
63-66	D	1.0
60-62	D-	0.67
Below 60	E	0.0

Please be aware that a C- is not an acceptable grade for graduate students. If you obtain a C- in a course, it may be possible for you to retake the course but your C- will remain part of your calculated cumulative GPA. To successfully complete the Biomedical Neuroscience Certificate or MSc programs you must have a cumulative final GPA of 3.00 or higher.

Additional information on UF grading policy may be found at:

<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#grades>

## Exam Policy

### ***Late assignments, quizzes and tests***

I recognize that personal circumstances arise that may interfere with your ability to meet a deadline. If you anticipate missing a deadline, please let me know as soon as possible and I will work with you to resolve the issue. Your emails will be responded to within 24 hours (typically sooner). Please see the [UF Attendance Policies](#) concerning absences, religious holidays, and illness. In general, late assignments, quizzes, and tests will not be accepted unless you have obtained a deadline extension from the instructor.

If you encounter technical difficulties with assignments (e.g. LockDown browser malfunction), be sure to include a UF helpdesk ticket number (<http://helpdesk.ufl.edu/>) in your request for a deadline extension if you plan to request one. The extension request MUST be submitted within 24 hours of the technical difficulty.

## Class Attendance Policy

This course is entirely online and is asynchronous. Thus there is no formal class attendance policy. Requirements for make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Excused absences that lead to missed assignment deadlines must be consistent with university policies in the Graduate Catalog

<http://gradcatalog.ufl.edu/content.php?catoid=10&navoid=2020#attendance>.

Additional information can be found here:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

## Expectations Regarding Course Behavior

### Communication Guidelines

#### WHEN DO I CONTACT THE UF HELPDESK?

In the event that you have **technical difficulties with E-learning**, please contact the UF helpdesk at [learning-support@ufl.edu](mailto:learning-support@ufl.edu), or (352) 392-4357 - select option 2. If your technical difficulties will cause you to miss a due date, you **MUST** report the problem to E-learning. Include the ticket number that you are given in an e-mail to the instructor to explain the late assignment/quiz/test.

Types of questions that should be directed to the Help Desk:

1. I can't log into E-learning
2. I have clicked on the "submit" button for my quiz and nothing is happening
3. I can't upload an assignment (be sure that you have reviewed the tutorial on how to do this BEFORE you contact the Help Desk)
4. E-learning has given me an error message and I can't submit my assignment.

**NOTE:** *Late work that involves technical difficulties with E-learning MUST be accompanied by a ticket number from the Help Desk.*

**ALSO** - *Be sure to be familiar with the hours of operation for the UF help desk since they are oftentimes not available after 10:30pm on workdays and after 8:00 pm on weekends. There hours are posted at <http://helpdesk.ufl.edu/about/business-hours/>*

#### WHEN DO I POST QUESTIONS TO THE COURSE QUESTIONS DISCUSSION BOARD?

Questions that deal with the course itself should be submitted to the Course Questions board. Posted questions should NOT be about grades or a private matter. Do not post personal grade questions on the Course Questions discussion board.

Before posting a question, check those already posted to be sure that you are not duplicating a question. These should be things that other students in the class might have trouble with. For example:

1. I am unable to post comments to VoiceThread.
2. The link to Blendspace or a specific VoiceThread is not working.
3. One of the quiz questions did not display properly.

Posting on the Course questions board is the fastest way to get an answer to your question. Be sure to give it a meaningful heading!

**Questions of a private nature should be e-mailed to the course instructor** (see below on how to e-mail within E-learning). In all cases, please allow 24 hours for a response. Every effort will be made to answer questions posted over the weekend with 24 hours. If not addressed, they will be addressed on the following Monday.

## **WHEN DO I EMAIL MY INSTRUCTOR?**

Questions about the course should be e-mailed to the instructor through the e-mail tool in E-learning.

Examples of e-mail questions for the instructor to get clear, concise responses:

1. I think there is an error in my grade for the assignment in module 3 (be sure to explain exactly why you think there is an error and provide documentation)
2. I am behind in the course and I would like to know how I may catch up (in such a case, your instructor may ask you to set up a Skype meeting or a time to call on the telephone)

If you have questions about the course itself, please reread the syllabus before asking a question. If the answer is not in the syllabus, check the Course Questions discussion board (this discussion board can be located by clicking on the discussions menu tab on the left of the course home page). If the answer to your question is not there, please post the question on the Course Questions discussion board.

DO NOT e-mail the instructor with general course questions. If your question is of a personal nature, e-mail your instructor from within e-learning system using the instructions below. Late work that involves technical difficulties with E-learning MUST be accompanied by a ticket number from the Help Desk.

## **HOW TO EMAIL YOUR INSTRUCTOR**

When emailing your instructor, please do so through Canvas.

To send an e-mail from the course:

1. Click on the mail icon that is located the left side of your screen.
2. Click the "Compose Message" button.
3. "To: window" will display.
4. Locate your instructor's name.

5. Always include a description in your subject line
6. Type your message and add any necessary attachments. Be sure that your subject line is meaningful.
7. Click "send."

### **ACADEMIC INTEGRITY**

Students are expected to act in accordance with the University of Florida policy on academic integrity. As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge:

**“We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.”**

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied:

**“On my honor, I have neither given nor received unauthorized aid in doing this assignment.”**

It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For additional information regarding Academic Integrity, please see Student Conduct and Honor Code or the Graduate Student Website for additional details:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>

<http://gradschool.ufl.edu/students/introduction.html>

**Please remember cheating, lying, misrepresentation, or plagiarism in any form is unacceptable and inexcusable behavior.**

### **PLAGIARISM**

Students must understand what plagiarism is and must not engage in this behavior when completing assignments and tests in this course. The University of Florida Student Honor Code states that plagiarism includes but is not limited to:

- Quoting oral or written materials including but not limited to those found on the internet, whether published or unpublished, without proper attribution.
- Submitting a document or assignment that in whole or in part is identical or substantially identical to a document or assignment not authored by the student.

Student whose assignments/tests exhibit evidence of plagiarism will receive zeros for those assignments and tests for the first offense and will receive a warning. Students who continue to engage in this behavior after the warning will be reported to the UF Dean of Students Office.

### ***PROHIBITED COLLABORATION OR CONSULTATION***

Student found to be involved in sharing answers and/or collaborating on exams or assignments will receive zeros for those exams and assignments. Students who continue to engage in this behavior after the warning will be reported to the UF Dean of Students Office.

### **Online Faculty Course Evaluation Process**

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

### **Support Services**

#### **Accommodations for Students with Disabilities:**

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester. The College is committed to providing reasonable accommodations to assist students in their coursework.

#### **Counseling and Student Health**

Students sometimes experience stress from academic expectations and/or personal and interpersonal issues that may interfere with their academic performance. If you find yourself facing issues that have the potential to or are already negatively affecting your coursework, you are encouraged to talk with an instructor and/or seek help through University resources available to you.

- The Counseling and Wellness Center 352-392-1575 offers a variety of support services such as psychological assessment and intervention and assistance for math and test anxiety. Visit their web site for more information: <http://www.counseling.ufl.edu>. On line and in person assistance is available.

- You Matter We Care website: <http://www.umatter.ufl.edu/>. If you are feeling overwhelmed or stressed, you can reach out for help through the You Matter We Care website, which is staffed by Dean of Students and Counseling Center personnel.
- If you live in Gainesville or the immediate surrounding areas, the Student Health Care Center at UF Health is a satellite clinic of the main Student Health Care Center that is located on Fletcher Drive on campus is available to you. Student Health at UF Health offers a variety of clinical services. The clinic is located on the second floor of the Dental Tower in the Health Science Center. For more information, contact the clinic at 392-0627 or check out the web site at: <https://shcc.ufl.edu/>
- If you live in Gainesville or the immediate surrounding areas, the UF Health Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32698, [ufhealth.org/emergency-room-trauma-center](http://ufhealth.org/emergency-room-trauma-center).
- University Police Department: Visit [police.ufl.edu/](http://police.ufl.edu/) or call 352-392-1111 (or 9-1-1 for emergencies).
- Crisis intervention is always available 24/7 from:

Alachua County Crisis Center:

(352) 264-6789

<http://www.alachuacounty.us/DEPTS/CSS/CRISISCENTER/Pages/CrisisCenter.aspx>

Do not wait until you reach a crisis to come in and talk with us. We have helped many students through stressful situations impacting their academic performance. You are not alone so do not be afraid to ask for assistance.

## Academic Resources

**E-learning technical support:** Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at [helpdesk@ufl.edu](mailto:helpdesk@ufl.edu).

**Career Connections Center:** Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services [career.ufl.edu/](http://career.ufl.edu/).

**Library Support:** [cms.uflib.ufl.edu/](https://cms.uflib.ufl.edu/) ask various ways to receive assistance with respect to using the libraries or finding resources.

**Teaching Center:** Broward Hall 352-392-2010 or to make an appointment 352 392-6420.  
General study skills and tutoring. [teachingcenter.ufl.edu/](http://teachingcenter.ufl.edu/)

**Writing Studio:** 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers. [writing.ufl.edu/writing-studio/](http://writing.ufl.edu/writing-studio/)

**Student Complaints On-Campus:** [sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/](http://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/)

**On-Line Students Complaints:** [distance.ufl.edu/student-complaint-process](http://distance.ufl.edu/student-complaint-process)