Syllabus Fall 2020

PHYS 095, FW:TAP: Science of Light & Color, 3 credits

Modality, Meeting Pattern, Location (if assigned)

In person on MF 3:30 – 4:45 PM in Innovation E330.

Instructor Name, Contact Information, Office Hours

Randall Headrick, rheadrick@uvm.edu.

Office hours will be held remotely in Microsoft Teams. Schedule TBA.

Technical support for students

Students, please read this technology check list to make sure you are ready for classes.
https://www.uvm.edu/it/kb/student-technology-resources/

Students should contact the Helpline (802-656-2604) for support with technical issues.

Pre-requisites or co-requisites

None. Familiarity with high school algebra is assumed.

General education (e.g. D1) or other requirements satisfied

None.

Course Description

The purpose of this course is to develop an appreciation for the physical phenomena that underlie light and color, beginning with the most basic phenomena and working towards more advanced topics. The course is structured around two 75-minute in-person meetings, that will include brief lectures. Most class meetings will also include either a hands-on or conceptual group activity to help student become familiar with the content. Homework will consist of reading, a reading quiz, and additional problem solving or activities. A writing assignment will normally be included in each homework assignment.

Course Learning Objectives

After completing this course, the student will be able to:

- Identify physical phenomena related to the production, detection, and sensing of light and color.
- Demonstrate proficiency in writing and communicating topics involving the scientific principles of light and color.

Pedagogy:

This course will rely on a flipped-classroom model where **students are required to read the assigned text before class, and complete scheduled reading quizzes as we move into each new chapter.** In-class lectures will be limited in scope, that is, they will not comprehensively cover all of the topics introduced in the reading and homework.

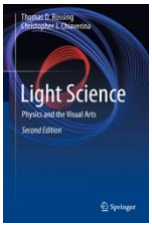
You will be required to complete online reading quizzes on Blackboard, which are due before we begin covering content from each chapter in class. Most of your class time will be spent in small-group activities, including demonstrations, problem solving, tutorials, labs, and exploring conceptual details. **You will be graded for all in-class activities.** In-class activities will typically be graded based on a 60% participation and 40% correct answer weighting, excluding opinion poll questions where no answer would be considered correct. Attendance is therefore very important, but illnesses and unexpected events often lead to absences. Three days of missed class activity will therefore be excused, but additional absences cannot be made up. Because the course is centered on small-group activities, you are expected to prepare for each day's activities in advance and to attend and actively participate on a daily basis. **Be aware that this class will require significant time commitment outside the classroom.**

Modality description/Outline

Homework, reading quizzes and in-class activities will be posted in Blackboard in the "Course Materials" section. Office hours will be held remotely in Microsoft Teams. MS Teams will also be used for lecture slides and for some aspects of group interaction.

Required Course Materials:

Textbook:



- Light Science: Physics and the Visual Arts
- Rossing, Thomas (et al.), ISBN 978-3-030-27103-9, 2nd ed. 2019, 490 p.
- Format: PDF and EPUB eBook (Immediately available per download: watermarked file, but DRM-free)
- Available from the publisher and various other online sources.

Required software:

- Microsoft Teams
- Access to Blackboard

Other required equipment:

- Laptop computer with webcam and microphone, headphones or earbuds.
- Cellphone with camera.

Blackboard, MS Teams, or other course sites:

Blackboard will be used for most course assignments and in-class work.

MS Teams will be used for office hours and other meetings, and for in-class collaboration.

Attendance Policy and Classroom Environment Expectations:

Attendance is mandatory, and in-class activities count for 20% of the total grade, as detailed below. The UVM attendance policy outlines expectations for attendance.

"The Green and Gold Promise clearly articulates the expectations that UVM has for students, faculty, and staff to remain compliant with all COVID-19 recommendations from the federal CDC, the State of Vermont, and the City of Burlington. This include following all rules regarding facial coverings and social distancing when attending class. If you do not follow these guidelines, I will ask you to leave the class. If you forget your mask, you cannot enter the class and should go back and retrieve your mask. The Code of Student Conduct outlines policies related to violations of the Green and Gold Promise. Sanctions for violations include fines, educational sanctions, parent notification, probation, and suspension."

Attendance and illness/isolation/quarantine:

Some students in our class may need to isolate or quarantine this semester. If you need to isolate or quarantine, please contact me to make arrangements to discuss missed work. The attendance policies described above will be adjusted accordingly. Students, especially those who are asymptomatic in quarantine, are expected to continue their academic work.

Grading Criteria/Policies:

Course Grades:

For each student, a score will be computed based on 100 points to be distributed as follows:

- 10% -- Reading quizzes. We will have a reading quiz on each reading assignment.
- 20% -- Homework assignments. Roughly 12 homework sets will be due during the semester. The times and subject material covered are listed on the Course Outline.
- 25% -- Writing assignments. There will be at least 6 writing assignments due during the semester.
- 20% -- In-class activities. There will be graded in-class activities during most class meetings, graded 60% on participation.
- 25% -- Final paper: The final paper will consist of a proposal for the paper (worth 5%), and the final paper itself (worth 20%).

Numerical to Letter Grade Conversion:

Letter grades will normally be assigned as follows:

A range = 100.0 - 90.0
B range = 89.9 - 80.0
C range = 79.9 - 70.0
D range = 69.9 - 60.0
F = below 60.

The instructor may adjust these guidelines under special circumstances.

Late assignments will not be accepted unless the instructor has granted an exception in advance.

Assessments (Graded Work):

Homework:

Homework problems serve as illustrations of the reading and in-class material and are essential towards consolidation of the students' grasp of physical principles. Homework assignments will generally be made available on Blackboard one week in advance of the due date. They will normally be due each Sunday at midnight.

Reading quizzes:
There will be a relative short reading quiz on each homework. They will require roughly 15-minutes each, but no time limit will be imposed. They will be posted on Blackboard and will normally be due each Monday at noon, i.e. before class meets at 3:30 pm.

Writing assignments:
Writing assignments build skills such as using library databases, critical thinking, and written expression. A writing assignment will normally be included in each homework assignment.

Final paper:
A 15-page typewritten final paper will be due on the last day of classes (Friday, December 4th). Each student will be required to choose a unique topic to write about. Papers will be submitted electronically on Blackboard; it will not be necessary to print a hard copy.

Examinations:
There are no formal examinations for this course.

Final exam:
There is no final exam for this course.

Recording Class Sessions:

Class sessions will *not* be recorded.

Research and Citation Help

For help selecting research topics, finding information, citing sources, and more, ask a librarian. Although we're working remotely, we're eager to help. You may ask questions by phone, e-mail, chat, or text, or make an appointment for an individual consultation with a librarian.

Howe Library: https://library.uvm.edu/askhowe
Dana Medical Library: https://dana.uvm.edu/help/ask
Silver Special Collections Library: https://specialcollections.uvm.edu/help/ask

Course Evaluation:

All students are expected to complete an evaluation of the course at its conclusion. The evaluations will be anonymous and confidential, and that the information gained, including constructive criticisms, will be used to improve the course.

COVID 19 Policy section

General statement regarding potential changes during the semester:
http://catalogue.uvm.edu/
The University of Vermont reserves the right to make changes in the course offerings, mode of delivery, degree requirements, charges, regulations, and procedures contained herein as educational, financial, and health, safety, and welfare considerations require, or as necessary to be compliant with governmental, accreditation, or public health directives.

Green and Gold Promise:
The Green and Gold Promise clearly articulates the expectations that UVM has for students, faculty, and staff to remain compliant with all COVID-19 recommendations from the federal CDC, the State of Vermont, and the City of Burlington.

The Code of Student Conduct outlines policies related to violations of the Green and Gold Promise. Sanctions for violations include fines, educational sanctions, parent notification, probation, and suspension.

Intellectual Property Statement/Prohibition on Sharing Academic Materials:

Students are prohibited from publicly sharing or selling academic materials that they did not author (for example: class syllabus, outlines or class presentations authored by the professor, practice questions, text from the textbook or other copyrighted class materials, etc.); and students are prohibited from sharing assessments(for example homework or a take-home examination). Violations will be handled under UVM's Intellectual Property policy and Code of Academic Integrity.

Tips for Success (optional):

Course-specific study/preparation tips

- Checklist for success in https://learn.uvm.edu/about/support-for-students/checklist-online-credit-courses/
- Academic support for online courses: https://www.uvm.edu/academicsuccess/online-learning-student-resources-remote-instruction
- Undergraduate/Graduate Writing Center

Student Learning Accommodations:

In keeping with University policy, any student with a documented disability interested in utilizing ADA accommodations should contact Student Accessibility Services (SAS), the office of Disability Services on campus for students. SAS works with students and faculty in an interactive process to explore reasonable and appropriate accommodations, which are communicated to faculty in an accommodation letter. All students are strongly recommended to discuss with their faculty the accommodations they plan to use in each course. Faculty who receive Letters of Accommodation with Disability Related Flexible accommodations will need to fill out the Disability Related Flexibility Agreement. Any questions from faculty or students on the agreement should be directed to the SAS specialist who is indicated on the letter.

Contact SAS:
A170 Living/Learning Center;
802-656-7753
access@uvm.edu
www.uvm.edu/access

Important UVM Policies

Religious Holidays:

Students have the right to practice the religion of their choice. If you need to miss class to observe a religious holiday, please submit the dates of your absence to me in writing by the end of the second full week of classes. You will be permitted to make up work within a mutually agreed-upon time. https://www.uvm.edu/registrar/religious-holidays

Academic Integrity:

The policy addresses plagiarism, fabrication, collusion, and cheating.
https://www.uvm.edu/policies/student/acadintegrity.pdf

Grade Appeals:

If you would like to contest a grade, please follow the procedures outlined in this policy:
https://www.uvm.edu/policies/student/gradeappeals.pdf

Grading:

For information on grading and GPA calculation, go to https://www.uvm.edu/registrar/grades

Code of Student Conduct:

http://www.uvm.edu/policies/student/studentcode.pdf

FERPA Rights Disclosure:

The purpose of this policy is to communicate the rights of students regarding access to, and privacy of their student educational records as provided for in the Family Educational Rights and Privacy Act (FERPA) of 1974.
http://catalogue.uvm.edu/undergraduate/academicinfo/ferparightsdisclosure/

Promoting Health & Safety:

The University of Vermont's number one priority is to support a healthy and safe community:

Center for Health and Wellbeing:
https://www.uvm.edu/health

Counseling & Psychiatry Services (CAPS)
Phone: (802) 656-3340

C.A.R.E. If you are concerned about a UVM community member or are concerned about a specific event, we encourage you to contact the Dean of Students Office (802-656-3380). If you would like to remain anonymous, you can report your concerns online by visiting the Dean of Students website at https://www.uvm.edu/studentaffairs

Final Exam Policy:

The University final exam policy outlines expectations during final exams and explains timing and process of examination period. https://www.uvm.edu/registrar/final-exams

Alcohol and Cannabis Statement:

The Division of Student Affairs has offered the following statement on alcohol and cannabis use **that faculty may choose to include, or modify for inclusion,** in their syllabus or Blackboard site:

Statement on Alcohol and Cannabis in the Academic Environment

As a faculty member, I want you to get the most you can out of this course. You play a crucial role in your education and in your readiness to learn and fully engage with the course material. It is important to note that alcohol and cannabis have no place in an academic environment. They can seriously impair your ability to learn and retain information not only in the moment you may be using, but up to 48 hours or more afterwards. In addition, alcohol and cannabis can:

- Cause issues with attention, memory and concentration
- Negatively impact the quality of how information is processed and ultimately stored
- Affect sleep patterns, which interferes with long-term memory formation

It is my expectation that you will do everything you can to optimize your learning and to fully participate in this course.