


PHYS 101 Light and Visual Phenomena

The Combination *PHYS 101/121* has no prerequisites.
You can use this combination as a lab science or science perspectives. Pick One.

Instructor: Michael Ruiz, Ph.D.; Text: Online. **You need Internet access with Google Chrome.**
The textbook is free and at our website (a \$250+ Savings). ruiz@unca.edu

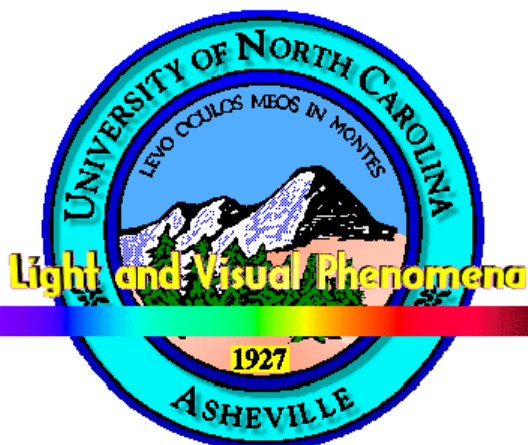
January 2020

Monday	Tuesday	Wednesday	Thursday	Friday
		1	2	3
6	7	8	9	10
13	14 A. Reflection	15	16 B. Refraction	17 Last Day to Drop/Add
20 	21 C. E&M Waves	22	23 D. Light and Matter	24
27	28 E. EM Spectrum	29	30 F. Light and Life	31




Website: www.uncalight.com or <https://www.opus.unca.edu/light/>

Our online course website was a top science/technology news story on *CNN* in 2002.



February 2020





Monday	Tuesday	Wednesday	Thursday	Friday
3	4 G. Color	5	6 H. Color Mixing	7
10	11 I. Shadows	12	13 J. Plane Mirrors	14 
17 Exam 1 (A-G) Taken in Lab	18 K. Spherical Mirrors	19	20 L. Lenses	21
24	25 M. Dispersion and Aberrations	26	27 N. Atmospheric Effects	28

Class Responsibilities and Resources

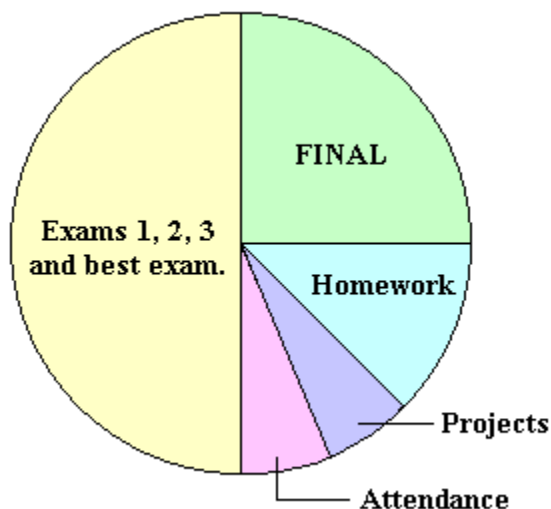
1. **Online Text:** <http://www.uncalight.com> Assignments are done online. Note the due dates.
2. **Notes:** You get access to "Power Notes," guided sheets you can fill in class.
3. **Homework:** Due 11:59 pm Friday night. You are on your own if you do it after 12 pm Thurs.
4. **Projects:** There are two projects you work on over a period of weeks. Know these due dates.
5. **Office Hours:** RRO 114 or 124D: T & R 11:15-11:45, W 10:45-11:45, 1:00-2:00 until April 28.
6. **The Forum:** Help your peers out with assignments on our 24/7 online discussion forum.
7. **Attendance (50):** You can miss 2 classes, but there is a bonus (10) for attending all classes. **You may see me to make up the bonus classes immediately after missing a class.**
8. **Official UNCA Travel:** See me 2 weeks prior to make arrangements for a missed class.
9. **Religious Observances:** See me 2 weeks prior to make arrangements for the Observance.
10. **Extra Credit:** Do questions in the text up until April 28. See Bonus on page March.



March 2020

Monday	Tuesday	Wednesday	Thursday	Friday
2	3 O. Cameras	4 Last Day to Withdraw is March 6	5 P. Stops and Exposure	6 First Web Project Due
9 Spring Break	10 Spring Break	11 Spring Break	12 Spring Break	13 Spring Break
16  →	17 Q. Camera Lenses	18  →	19 R1. Film	20
23 Exam 2 (H-N) Taken in Lab	24 R2. Film and Sensors	25	26 S1. The Eye	27
30	31 S2. Eye Glasses			

Grading (This course typically has a class grade point average in the 2.6 to 2.8 range).






- 100 Exam 1 aka E1
- 100 Exam 2 aka E2
- 100 Exam 3 aka E3
- 200 Final aka FN
- 100 Best Exam Percentage
- 100 Web Homework (Due Weekly)
- 50 Two Web Projects (25 points each)
- 50 Minus 5 per miss after 2 free misses
- 800 Total** (No ± Grades, See Below)

- A (740-800) - apply knowledge in new areas
- B (660-739) - apply knowledge in familiar areas
- C (580-659) - apply knowledge in easy areas
- D (500-579) - misconceptions in principles
- F (0-499) - serious gaps in understanding

Bonus and Borderline: If you attend all classes you get a 10-point bonus. If your grade is borderline, I will consider helping you if you come to class, pay attention, put in effort with homework and extra credit. For very close cases I will also look for a strong Final.

April 2020

Monday	Tuesday	Wednesday	Thursday	Friday
		1 	2 T. Perception	3
6	7 U. Color Perception	8	9 V. Cognitive Illusions	10
13 Exam 3 (O-U) Taken in Lab	14 W. Optical Instruments	15	16 X. Lumines- cence	17
20	21 UGR Symposium No Day Class	22 	23 Y. Einstein and Light	24 Second Web Project Due
27 Last Day for Extra Credit 	28 Z. Quantum Optics	29 Reading Day	30 FN (A-Z) 11:30 - 2:00	



How to Succeed in Light

1. Time. Reserve at least 2 hours (reading, study, web apps, multimedia, assignments, etc.) for every hour of class. This time is at least 6 hours per week in addition to class time. If you are a full-time student and have a job, you should NOT work more than 15-20 hours per week.

2. Instructor. Drop by weekly during office hours. If you have any problems, come talk to me.

3. Peers. Ask your classmates for help, e.g., at the peer *Forum* on our website and offer help to others. You master the material when you are challenged to explain it to someone else.



Come to every class and take notes. Do not fall behind! Science classes build on previous classes. Use our “Exam Practice”, where you see actual exam questions. If you spend lots of time with “Exam Practice” you will virtually see all the possible questions that can be on your exams. But the best advice is to first carefully study the solutions to old exams.




UNCA is committed to making courses accessible to persons with documented special learning needs. To apply, register with the Office of Academic Accessibility and then see me ASAP.


Make-Up Classes. See me within a week if you would like to make up a missed class.

The Friday Rule: If you wait until the due date (Friday), you are completely on your own, no matter what problems arise, including computer difficulties.

May 2020

Monday	Tuesday	Wednesday	Thursday	Friday
	 		Apr 30 FN (A-Z) 11:30 - 2:00	1
4 LE2 for Lab L2 (W am) 8:00 - 10:30	5 LE2 for Labs L1 (T), L4 (R) 8:00 - 10:30	6 LE2 for Lab L3 (W pm) 11:30 - 2:00	7	8
11	12	13	14	15
18	19	20	21	22
25	26	27	28	29



RRO 125: T-R 1:20-2:35 pm.

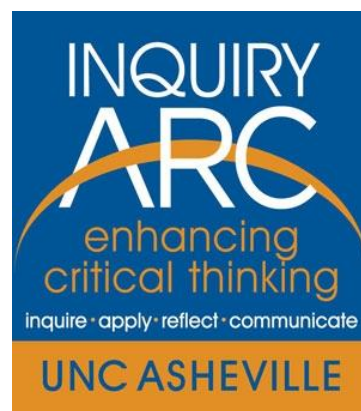
For adverse weather consult your email, the UNCA Home Page, or the radio.

Art in PHYS 101, I-ARC, and CNN



We have chosen a featured artist for the course: Élisabeth Louise Vigée Le Brun (1755-1842). Our website includes a special gallery of 60 of her portraits.

The objective of *Light and Visual Phenomena* is a liberal-arts science course for non-majors. It includes the biology of the eye, medical prescription of eyeglasses, psychology of perception, optical illusions, photography, magic, color in art, and inventions. You will appreciate light and its many applications and expressions in the world.



We follow the *UNCA* I-ARC model: Inquiry (understanding the question or problem at hand), Apply (using the appropriate principle, law, or formula), Reflect (reflecting on the answer to verify its validity), and Communicate (finally giving the answer with confidence with proper units and significant figures).

Our course was a top science/technology news story on *CNN: E-Book Learning*, which aired on *NEXT@CNN*, August 31, 2002. You can bookmark <http://www.opus.unca.edu/light/>

UNCA-WIDE Important Information

Title IX and Sexual Misconduct. [Note that the legal term “Responsible Employee” appearing below means “Mandatory Reporter.”] Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity that receives federal funds. The act is intended to eliminate sex discrimination in education. Title IX covers discrimination in programs, admissions, activities, and student-to-student sexual harassment, sexual exploitation, interpersonal violence, non-consensual touching, and sexual assault. UNC Asheville’s policy against sexual misconduct extends not only to employees of the university but to students as well. If you encounter unlawful sexual misconduct behavior or gender based discrimination, please talk to any University Responsible Employee (Mandatory Reporter). **All University employees (except Health and Counseling center employees and employed Campus Ministers are considered Responsible Employees (Mandatory Reporters) and are mandated to report incidents to the Title IX Office.**

The Title IX office consists of [Dr. Jill Moffitt](#), UNC Asheville’s Title IX Administrator, who can be reached at [\(828\)232-5658](tel:8282325658). Individuals may also report anonymously at <https://police.unca.edu/anonymous-report>. For more information regarding Title IX and resources please visit <https://titleix.unca.edu/>.

UNCA Chief of Police: [Chief Eric Boyce](#).

Accommodations and Academic Accessibility. UNC Asheville values the diversity of our student body as a strength as a critical component of our dynamics community. Students with documented special needs may require accommodations due to facilities, course design, technology used, or other campus resources. Students who experience a barrier to full access to this class should let the professor know and/or make an appointment to at the [Office of Academic Accessibility](#) as soon as possible at the beginning of the semester. All information will remain confidential. For more specific information please contact the Office of Academic Accessibility at [\(828\)232-5050](tel:8282325050) or academicaccess@unca.edu, visit them in the [OneStop Student Services Center](#) or at their website <https://oaa.unca.edu/>.

Early Alerts. Faculty at UNCA are encouraged to use the university's Early Alert system to communicate with students about their progress in courses. When a faculty member submits an early alert that expresses a concern, the student receives an email from OneStop, completing a form as part of the process. It is in the student's best interest to complete the EA process quickly, as students who do so are more likely to earn credit for the course. Failure to complete the EA process (including meeting with the professor and submitting the required form to OneStop) will result in a registration hold; the student won't be able to register for the next semester's classes until they have met with the faculty member and turned in the required form. Questions about the EA system can be directed to [Anne Marie Roberts](#) (amrober1@unca.edu) in OneStop.

Team to Help Students Stuggling: <https://dos.unca.edu/concerned-about-student>

Academic Dishonesty. Note that any violations of academic dishonesty (cheating, signing someone else's quiz sheet, etc.) must be reported to the Provost's Office.