COLORADO STATE UNIVERSITY- DEPARTMENT OF PHYSICS
PH 521 – Lasers
Spring Semester 2020 Course Syllabus

Instructor

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Textbook

Quantum Electronics for Atomic Physics and Telecommunications *Second Edition*
ISBN: 9780199665488

Anticipated topics to be covered

Gaussian Beams (Chapt. 1)
Optical Resonators (Chapts. 2-4)
Laser Gain and Oscillation (Chapts. 5-6)
Specific Types of Lasers (Chapts. 7-9)
Guided Beams and Fiber Lasers (Chapt. 10)
Modelocking (Chapt. 11)
Frequency Stabilization (Chapts. 12-13)
Nonlinear Optics (Chapt. 14)
Frequency and Amplitude Modulation (Chapt. 15)

Lectures

Monday, Wednesday, and Friday 1:00-1:50 PM Engineering Room D-102

Office Hours

Tentatively scheduled for 1:00-3:00 pm on Thursday (also by appointment).

Exams

Midterm: TBD
Final: Determined by the registrar

Grades:

Homework 35%
In class participation 10%
Midterm 20%
Final 35%

Grading scale:

90-100 A
80-89 B
70-79 C
60-69 D
59 and below F

The top 3% and bottom 3% of a range will be given the + and – designations, respectively.

Homework
Under normal circumstances there will be problem sets assigned weekly. Please begin the assignments as soon as possible so that you can take advantage of office hours.

You can consult with other students but the assignment you turn in must be based on your own understanding. Some problems from the text can be found online or in solutions manuals. You may not use these resources to complete your assignments. Late assignments will be penalized one letter grade per day.

Depending on available time, your grade may be based on a randomly selected subset of the assigned problems. Part of your homework grade will be based on the clarity of your presentation. Please keep that in mind as you are preparing your solutions.

In Class Participation
I will aim to make the lectures interactive. During a typical lecture period, you may be asked to perform some simple calculations or answer some quick conceptual questions.

Exams
There will be two comprehensive exams. They will be closed book, closed note exams. You may not use laptops or cellphones in the exam. An unexcused absence from an exam will result in a failing grade for that exam.

Academic Integrity
This course will adhere to the Academic Integrity Policy of the Colorado State University General Catalog and the Student Conduct Code. On the first page of any material you submit for grading in this course, you have the opportunity to write the following honor pledge: ***I have not given, received, or used any unauthorized assistance in completing this problem set/exam.*** Your signature after this pledge is a positive affirmation that you have abided by the Academic Integrity Policy given in this syllabus, in the Colorado State University General Catalog, and in the Student Conduct Code.