Physics 325 – Optics. Winter 2020
Section A01 (CRN: 22451)

Instructor:
Andrew MacRae (macrae@uvic.ca) Office: Elliott 113 tel: 250-721-7708

Office Hours:
Wednesdays & Thursdays 1:30-2:30pm or by appointment.

Course Textbook:
Adams and Hughes “Optics f2f”, 1st ed. (Available in bookstore)

Supplementary Texts:
Hecht, E “Optics”, 5th ed.
Pedrotti³, “Introduction to Optics” 3rd ed.
Saleh, B. and Teich, M. “Fundamentals of Photonics” 2nd ed.
Feynman, Leighton, and Sands “The Feynman Lectures on Physics” Vol 1

Lectures:
Tuesdays, Wednesdays, and Fridays, 11:30am-12:20pm, Elliott 060

Labs:
You will conduct a total of 5 laboratory experiments throughout the semester. A passing grade in the labs is required to pass the course. A lab manual is available for purchase in the bookstore. Labs will take place in Elliott 131. You must register for one of the following sections:
B01: Mondays, 2:30-5:20pm
B02: Tuesdays, 2:30-5:20pm
B03: Wednesdays, 230-5:20pm
B04: Fridays, 2:30-5:20pm

Prerequisites:
PHYS 216 or ELEC 216, MATH 204, MATH 110 or MATH 211.

Course Assessment:
Labs: 15%
Assignments: 15%
Daily Quizzes: 5%
Poster Session: 10%
Midterm Exam: 15%
Final Exam: 40%
Grading:
The final percentage will correspond to a letter grade assigned as follows:
A+ 90-100  A 85-90  A- 80-85
B+ 77-80  B 73-77  B- 70-73
C+ 65-70  C 60-65  D 50-60
F 0-50%  N (Fail, did not complete course requirements by end of term)

Poster Presentation:
Students will make and present a research poster on an optics topic of their choosing. A list of suggested topics will be provided, or you can suggest your own research topic for approval. A one-page outline of the poster worth 20% of the poster grade will be due early March.

Outline of Course Material
1. Electromagnetic Waves in Free Space (Lectures 1-5)
2. Interaction of Light With Matter (Lectures 6-9)
3. Interference and Diffraction (Lectures 10-17)
4. Polarization (Lectures 18-21)
5. Optical Instrumentation (Lectures 22-27)
6. Frontiers in Optics (Lectures 28-32)

Tentative Timeline:
January 7th: First day of class
January 21st: Assignment 1 Due
January 31st: Assignment 2 Due
February 14th: Midterm Examination
February 25th: Assignment 3 Due
March 3rd: Poster Outline Due
March 6th: Assignment 4 Due
March 17th: Poster Session
March 6th: Assignment 4 Due
March 20th: Assignment 5 Due
April 3rd: Assignment 6 Due. Last day of class.