CAPILANO UNIVERSITY COURSE OUTLINE	
Term: **FALL 2017**	Course No. **PHYS 115**
Course: **FUNDAMENTAL PHYSICS II**	Credits: **4.0** Section:
Office: Tel: email:	

COURSE FORMAT: Three hours of class time, three lab hours plus an additional hour of supplemental activity delivered through on-line or other activities for a 15 week semester, which includes two weeks for final exams.

PRE-REQUISITES: PHYS 114 (C-) grade and MATH 126; as a pre- or co-requisite.

Note: This is an approved Quantitative/Analytical course for baccalaureate degrees.
Note: PHYS 115 is equivalent to PHYS 111. Duplicate credit will not be granted for this course and PHYS 111.

COURSE OBJECTIVES:

General: This course will familiarize students with classical electromagnetism, wave optics, and modern physics, and provide you with a sense of the direction of contemporary research in Physics.

Student Learning Outcomes: Upon successful completion of this course, the student will be able to:

- accurately visualize and describe mathematically electromagnetic interactions and wave phenomena in different environments;
- utilize conceptual methods to solve problems efficiently;
- use graphs and computational resources for solution and visualization of word problems and real life events; and
- make electromagnetic and circuit measurements in the laboratory, analyze data, and present results in a scientific manner specifically including uncertainties.

REQUIRED COURSE MATERIALS:

Textbook: Knight, Randall. Physics for Scientists & Engineers with Student Workbook RVP. 4th ed. Pearson Publishing, 2016 with SAPLING ACS SINGLE HW PHYSICS CALC, Sapling Learning.

i>clicker remote: Available from the Capilano University Bookstore

Supplements: Capilano University Physics 110/111/114/115 Laboratory Manual.
Capilano University Physics Laboratory Notebook.

COURSE CONTENT: (Tentative)

Weeks	Topics
1,2	Electrostatics - electric fields, Gauss's Law, potential, capacitance
3,4,5	Electric current and circuits - Ohm's Law, Kirchhoff's rules, RC circuits
6,7,8	Magnetism - magnetic fields, Biot-Savart, Ampere's, Faraday's, Lenz's Laws, inductance, LR circuits
9,10	AC circuits, reactance, transformers
11	Electromagnetic waves, light, polarization
12	Physical Optics - interference, diffraction, etc.
13	Quantum Physics - photons, Bohr atom, wave-particle duality, uncertainty principle
14, 15	Final Exams

EVALUATION PROFILE:

Final grades for the course will be computed based on the following schedule:

Midterm(s)	20%
Labs (all labs must be completed)	20%
Assignments	8%
In-class responses	7%
Final Exam	35%
Performance Evaluation	10%
TOTAL	100%

A student may be required to produce a medical certificate in order to be given a make-up lab.

In order to pass the course, students must both pass the lab portion **and** receive a minimum total of 25/55 for the midterm and final exam components of the evaluation.

PERFORMANCE EVALUATION:

In the absence of exceptional circumstances, which are at the instructor's discretion, the performance evaluation component of the final grade will be prorated to the rest of the grade. For example, a 10% performance evaluation component would be determined by dividing the remaining mark out of 90 by 9. The most common circumstance justifying an increased performance evaluation mark is a student's improved performance in the final examination relative to the midterm exam(s), which the instructor feels justifies an elevated letter grade.

SUPPLEMENTAL 4TH HOUR ACTIVITY:

Supplemental activity might be a scheduled tutorial, an on-line activity, a group meeting, or some other activity as indicated by your instructor.

GRADING PROFILE: Letter grades will be assigned according to the following guidelines:

A+ 90 - 100%	B+ 77 - 79%	C+ 67 - 69%	D 50 - 59%
A 85 - 89%	B 73 - 76%	C 63 - 66%	F 0 - 49%
A- 80 - 84%	B- 70 - 72%	C- 60 - 62%	

Students should refer to the University Calendar for the effect of the above grades on grade point average.

OPERATIONAL DETAILS:

University Policies: Capilano University has policies on Academic Appeals (including appeal of final grade), Student Conduct, Cheating and Plagiarism, Academic Probation and other education issues. These and other policies are available on the University website.

Attendance: Strongly recommended, as class work and examination success require regular attendance, as does consideration for special arrangements due to missed exams, etc. (see section below).

Labs: In order to obtain credit for PHYS 115, you must register in a lab section and pass the labs. You are required to attend every week. If you wish a lab exemption, you must furnish proof of successful completion of an equivalent lab course at the beginning of the semester. This exemption is at the discretion of the instructor.

Missed Exams and Labs: Normally, a score of zero will be given for a missed exam, test, quiz, lab, etc. In some exceptional situations, the student will be permitted to write a make-up test, defer the lab to a later date or to replace the score by other marks.

The situations in which a score of zero may be avoided are those for which the student meets **all** of the following conditions:

1. Circumstances are beyond the control of the student which resulted in the exam, test, quiz, lab, etc. to be missed. Such circumstances include serious illness or injury, or death of close family member. They do **NOT** include forgetting about the test, lack of preparation for the test, work-related or social obligations.

2. The student has notified the instructor (or the School of STEM office staff, if the instructor is not available) about the missed exam, test, quiz, lab, etc. Such notification **MUST** occur in advance, if possible, or at the latest, on the day of the exam, test, quiz, lab, etc.

3. Proof of the circumstances must be provided. Proof of illness or injury requires a note from a doctor, who may also be consulted.

4. The student has been fully participating in the course up until the circumstances that prevented the writing of the exam, test, quiz, lab, etc. **Fully participating means attending almost all classes and turning in almost all assignments in the course**.

The options offered to the student who meets the four conditions are decided by the instructor. They will not necessarily meet the convenience of the student.

Final Exam Period: Students should note that the final exam period is from **??? to ???***,* and that they can expect to write exams at any time during this period. Individual exam times will not normally be rescheduled because of holidays, work, or other commitments. While efforts are made to spread exams throughout the exam period, an individual's particular course combination may result in exams being scheduled close together, or spread widely through the entire exam period.

Cheating/Plagiarism: Students caught cheating on a test will normally receive a grade of "F" for the course. First incidents deemed to be particularly serious, or second or subsequent incidents of cheating and plagiarism, will be dealt with under the provisions of the University Policy on Cheating and Plagiarism. Plagiarism (including the copying of any part of assignments, laboratory reports and essays) is a serious offence and is a form of cheating.

Incomplete Grades: Incomplete grades (“I”) are given only when special arrangements have been agreed upon with the instructor prior to the end of the semester. Since "I" grades are granted only in exceptional circumstances (usually health problems), their occurrence is rare. A student receiving an “I” grade should see the instructor.

English Usage: Students are expected to use correct standard English in their written and oral assignments, exams, presentations and discussions. Failure to do so may result in reduced grades in any part of the Evaluation Profile. Please refer to the guidelines provided in the Capilano Guide to Writing Assignments (available from the University bookstore).

Emergency Procedures: Please read the emergency procedures posted on the wall of the classroom.