Mathematics/Physics 248 Section A01 (22053/22465) COURSE OUTLINE
Department of Mathematics and Statistics, Department of Physics and Astronomy, University of Victoria
Spring Term, 2019

INSTRUCTORS
Ryan Budney
rybu@uvic.ca
DTB A516
Falk Herwig
fherwig@uvic.ca
Elliott 214

TEACHING
Jacob Nagrocki (jacobnagrocki@gmail.com)
ASSISTANTS
Kyle Bromma (kbronma@gmail.com)
William Thompson (wthompson@uvic.ca)
Travis Martin (travismartin@uvic.ca)
TBA
TBA

LECTURE
10:00am – 11:20am in DTB A110, Mondays and Thursdays

LABORATORY
11:30am–12:50pm in ELL 062 Mondays, Thursdays
2:30pm–3:50pm in CLE A307 Wednesdays, Fridays

OFFICE HOURS
Budney Mon, Thur. 2pm–3pm
Herwig Fri. 1:30pm–2:30pm.
TBA
or by appointment.

PREREQUISITES
Math 110 or Math 211, Math 200 and CSC 110 or CSC 111.

TEXT
We have no required text for the course but the book A Primer on Scientific Programming with Python by Langtanan is a good general reference.

SYLLABUS
Use of a high-level computer language for mathematical and scientific experimentation, simulation, and calculation. Programming of mathematics using available functions and routines and also writing short programs for symbolic and numerical computations, visualization, graphical output, and data management. The goal is to become competent with a high-level mathematics language and to practice programming in such a language. Emphasis on hands-on coding for experimentation in a variety of mathematical and physical contexts.

TOPICS
The primary topic is using the Python programming language to run elementary mathematical and numerical physics experiments. The course will be exploration-oriented. We will become acquainted with Linux and Python as required for our experiments. Topics to cover include: number systems on computers, numerical analysis, symbolic mathematics, simulations of solutions to differential equations, testing conjectures, graphics and plotting discovering statistical trends in data, manipulating various useful file formats, verification and validation, data acquisition, utility of pseudo-random processes (Monte-Carlo, etc).

FINAL GRADE
The chart on the right describes how your final grade will be computed.

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<td>Mid-term</td>
<td>15 %</td>
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<td>Small tasks</td>
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<td>Homework</td>
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POLICIES
Please consult the Department course policies.
IMPORTANT DATES

Quiz 1 January 14th (Monday class)
Assignment 1 January 24th
Quiz 2 January 31st (Thursday class)
Assignment 2 February 14th
Reading Break February 18th–22nd
Mid-term February 25th (in class)
Assignment 3 March 14th
Quiz 3 March 21st
Assignment 4 March 28th
Final Exam TBA

The mid-term exam will be during the regular class time.

Quizzes will be at the start of class, on the dates listed.

Homework assignments will be due at 10am on the specified day.

Assignments turned-in one minute late will not be graded. You are encouraged to submit your assignment early and often. Ensure you turn in preliminary versions, and check for feedback on CourseSpaces. There are several reasons for this, including ensuring that we can find your assignment. The version present on your repository at the due date and time is the version that will be graded.

MISSED ASSESSMENT

There will be no makeup homework or tests offered in this course. In cases where assessment is missed due to documented illness, documented accident or documented family affliction, we will modify the assessment scheme. Missed homework is accommodated by the best three of four policy, meaning your top three homework assignments would be used to compute your homework grade.

If you are excused from the midterm, the final exam will count for 55% of your final grade.