Curriculum Proposal Form

New/Change to Course/Program – Okanagan campus

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| Category**: 1** | | |
| Faculty/School: FOS **Dept./Unit:** CMPS  **Faculty/School Approval Date:** YYYYMMDD  **Effective Session:**  2022W | | **Date:** 20211026  **Contact Person:** Dr. Patricia Lasserre  **Phone:** 250.807.9502  **Email:** patricia.lasserre@ubc.ca |
| Type of Action: [delete other choices] New Course | | |
| **Rationale:**  Data 100 is a new course that is taught in a very accessible programming language (Python) that introduces students to the world of Data Science. The ability to effectively work with data is considered an essential skill in many aspects of our society. Working with data generally involves carrying out repetitive tasks to prepare, clean, and process data before it can be analyzed and presented to a wide range of audiences. These audiences may be interested in the answers to a variety of research or business questions.  Despite these skills being universally valued, students are not able to learn them until later in their university careers. In addition, courses with these skills often have inconvenient pre-requisites, making it impractical for students to learn and apply the skills throughout their degrees. We wanted to design this course so anybody at UBCO could take it, regardless of the faculty or program they were enrolled in.  This course complements the current offerings in Data Science and Computer Science by introducing computational skills in Python while learning to work with a variety of data sets. Key foci of this course are computer literacy and basic programming skills with an emphasis on reproducible workflows.  Several majors in our department will benefit from this course, in particular Computer Science (which currently does not have a formal course on Python), Data Science (which needs to introduce Data Science both in R and in Python), and Physics (which would permit instructors to embrace computation in class and in labs to reinforce theoretical concepts).  One of the goals of this course is to allow students to sample Data Science applications via the labs, in a variety of different contexts. In the first two-thirds of the course, all students will do the same labs to build their skills in Python. In each of the last 3 labs, students will select from a “buffet” of discipline-specific labs based on their interests and curiosities (and importantly, no pre-reqs). Each lab in the series will have the same learning outcomes, but the datasets and “questions” will differ based on the discipline. Some example labs that we are currently considering include exploring:  - Flow-rates and temperatures of various rivers.  - Stock-market fluctuations over time.  - Population growth in major urban areas  - Climate change  From our informal discussions while developing this course, we have several commitments from folks across campus to help us develop these discipline-specific labs at the first-year level. There is a tremendous amount of excitement across the Faculty about a data science course taught in Python, even beyond our department. These concepts are critical for many other disciplines with a large amount of overlap on the skills needed. | | |
| **Proposed Academic Calendar Entry:**  **DATA 100 (3) Introduction to Data Science in Python**  Fundamentals of data science with an emphasis on computational thinking, testing, debugging, and working with data sets. Real-world applications from disciplines in the sciences, humanities, medicine, engineering, social sciences, and others. No prior computing background is required. [3-2-0]  Equivalency: COSC 100  **COSC 100 (3) Introduction to Data Science in Python**  Fundamentals of data science with an emphasis on computational thinking, testing, debugging, and working with data sets. Real-world applications from disciplines in the sciences, humanities, medicine, engineering, social sciences, and others. No prior computing background is required. [3-2-0]  Equivalency: DATA 100 | **Draft Academic Calendar URL:**  **URL**  [URL from the draft Academic Calendar <http://www.calendar.ubc.ca/okanagan/proof/edit> – **not** the current, posted Academic Calendar.  **Note:** URL not required for individual courses.]  **Present Academic Calendar Entry:**  (Cut and paste from the draft Academic Calendar.) | |