THE UNIVERSITY OF BRITISH COLUMBIA

# Curriculum Proposal Form
## UBC OKANAGAN
## New or Change to Course or Program

**Category: 1**

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| **Faculty: Irving K. Barber School of Arts and Sciences**<br>**Unit/Dept.: Unit 4**<br>**Faculty Approval Date: Sept.25, 2007**<br>**Effective Session Winter Term 1, 2008/2009** | **Date: August 20th, 2007**<br>**Contact Person: Yong Gao**<br>**Phone (250) 807-9503**<br>**Email: yong.gao@ubc.ca** |
| **Proposed Calendar Entries:**<br><br>**COSC 420 (3) – Algorithms and Intelligent Systems for Bioinformatics**<br>Algorithmic techniques for problems in bioinformatics. Analysis and comparison of genetic sequences; construction of phylogenetic trees; prediction of biomolecular structures; construction and analysis of biopolymer interaction networks; pattern discovery in biological data; techniques from artificial intelligence. **[3-2-0]**<br><br>**Prerequisite:** COSC 222 and one of COSC 320, COSC 322. | **URL: None**<br>**Present Calendar Entry: None**<br>**Type of Action**: **New course**<br><br>**Rationale:**<br>The advancement of high-throughput biotechnologies over the past three decades has produced an unprecedented amount of data in the form of biological sequences and biopolymer interaction networks. Digesting and making sense of these data pose many challenging algorithmic problems. Elegant algorithms, methodologies, and software systems have been developed by the computer science community.<br>This 4th year course introduces students majoring in computer science (or in other disciplines with sufficient computer science background) to these fundamental ideas and techniques, focusing on how the variety of tasks of biological importance are formulated and solved as algorithmic problems.<br>Offering this course will not only enrich the learning experience of students in the computer science program, but also expose them to a new, exciting, and challenging field.<br>The field of bioinformatics is still evolving and courses on these topics are becoming an important component of the computer science curriculum at many institutions. |