



# THE UNIVERSITY OF BRITISH COLUMBIA

Enrolment Services  
Senate and Curriculum Services  
1874 – 2016 East Mall  
Vancouver, BC  
V6T 1Z1

4 May 2006

To: Senate

From: Senate Admissions Committee & Senate Curriculum Committee

Re: **New Programs in Bioinformatics**

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Attached please find the following graduate proposal for your consideration:

## **Graduate Studies**

- 1) The following new program:
  - a. **Master of Science and Doctor of Philosophy in Bioinformatics**
- 2) The following new courses:
  - a. **BIOF 599** (12) M.Sc. Thesis
  - b. **BIOF 699** (0) Ph.D. Thesis



## UBC Curriculum Proposal Form Change to Course or Program

**Category: (2)**

<p><b>Faculty:</b>  <b>Department:</b>  <b>Faculty Approval Date:</b></p> <p><b>Effective Session ____ Term          ____ Year ____ for Change</b></p>	<p><b>Date:</b>  <b>Contact Person: Joyce Tom</b>  <b>Phone:</b>  <b>Email:</b></p>
<p><b>Proposed Calendar Entry:</b></p> <p><b>Bioinformatics Graduate Program</b></p> <p><b>Degrees Offered: PhD, MSc</b></p> <p><b><i>Members</i></b></p> <p><b>Professors</b>          D. Baillie, R. Brinkman, J. Bryan, A. Cherkasov,          A. Condon, P. Hieter, H. Hoos, S. Jones, M.          Marra, F. Ouellette, P. Pavlidis, W. Wasserman,          M. Wilkinson</p> <p><b>Associate Professors</b>          C. Bajdik, H. Brock, A. Brooks-Wilson, A. Eaves,          C. Eaves, J. Emerman, B. Finlay, R. Gottardo, S.          Hallam, R. Hancock, M. Hayden, C. Haynes, R.          Holt, P. Hoodless, K. Humphries, R. Kay, P.          Keeling, L. Keshet, M. Kobor, J. Kronstad, G.          Krystal, W. Lam, P. Lansdorp, N. Le, V. Ling, C.          MacAulay, D. Mager, D. Moerman, E. Moore, C.          Nelson, R. Ng, J. Piret, A. Rose, M. Rosin, E. M.          Simpson, J. Spinelli, F. Takei, Z. J. Wang</p> <p><b><i>Program Overview</i></b>          The Bioinformatics Graduate Program is a trans-          disciplinary program that combines          computational and biological disciplines for          students pursuing an MSc or PhD. This program is          intended to accommodate the diverse          background of students and the broad nature of          bioinformatics research. Students, who apply for          entrance, must satisfy the general regulations of          the Faculty of Graduate Studies and must be          acceptable to the Bioinformatics Graduate          program admissions committee.</p>	<p><b>URL:</b>  <b>Present Calendar Entry:</b>          None.</p> <p><b>Type of Action:</b>          1) New Program.</p> <p><b>Rationale:</b> The CIHR/MSFHR          Bioinformatics Training Program has          been in existence since September          2002, with students registered in          either the Genetics Graduate Program          or the Statistics Department. The          program has graduated six Master's          students, with an additional eleven          students pursuing their Master's          degrees and another eleven students          entering PhD programs in the          laboratories of participating members.          Supervisors in the program feel that          the time is right to establish an          independent graduate program          offering degrees in Bioinformatics.</p>



## **Doctor of Philosophy**

### **Admission Requirements**

Students admitted to the PhD degree program normally possess an MSc degree in Bioinformatics or a related area, with clear evidence of research ability or potential. Transfer from the MSc to the PhD program is permitted under the regulations set by the Faculty of Graduate Studies.

### **Program Requirements**

The major requirement for the Ph.D. is completion of a research thesis meeting the Faculty of Graduate Studies requirements. There are no specific course requirements for the PhD degree program apart from the thesis, however, the student's PhD thesis committee has the prerogative to impose course requirements where course deficiencies are perceived.

Students proceeding towards a PhD must pass an oral qualifying examination within the first 24 months of study. All students are required to present a Bioinformatics graduate program seminar upon completion of their program, and before their thesis defense.

A student's committee for the doctorate will consist of the thesis supervisor and three others. The supervisor and at least one other member must be members of the Bioinformatics graduate program.

## **Master of Science**

### **Admission Requirements**

Successful applicants require a BSc or equivalent, majoring in a biological science (such as biology, genetics, microbiology, molecular biology, medicine) or in a quantitative science (such as computer science, mathematics, statistics, physics, engineering). If the applicant has a degree in a biological science, they should also have significant experience in a quantitative science or vice versa. Students must also meet current Faculty of Graduate Studies admission requirements, with the expectation that most successful applicants will significantly exceed these minimum requirements.

### **Program Requirements**



The required courses for the program are: i) CPSC 545 (Algorithms for Bioinformatics) – 3 credits, ii) MEDG 548C (Problem-based Learning in Bioinformatics) - 3 credits and iii) GENE 501 (Special Topics in Bioinformatics) - 3 credits. Students are also required to complete three elective courses from computer science, statistics, medical genetics and other related faculties for a total of nine credits. Required program credits equal a total of 18 course credits and a 12 credit thesis.

As well, three non-credit four-month research rotations will be required to be completed in bioinformatics-affiliated laboratories.

Students entering the program with either a Bachelors degree or a Masters degree will be expected to complete the same required course work and electives. Course equivalencies will be considered, and the student may replace required program courses with electives, upon the approval of their mentor and supervisory committee. The program must be started in the September term in order to complete the required courses and research rotations as outlined.

The student's graduate program will be decided by the student, and their assigned mentor and committee members. The mentor and committee members will ensure that the student takes courses that remedy any deficiencies in the student's undergraduate preparation. All students must complete 18 credits of graduate course work in their first year, three four-month laboratory research rotations under the supervision of bioinformatics-affiliated faculty, and meet the formal requirements of the Faculty of Graduate Studies. At the beginning of their second year, upon the recommendation of their thesis supervisor and committee, students continue their MSc in bioinformatics or transfer to a PhD program in bioinformatics or related discipline.

All students are required to present a Bioinformatics graduate program seminar upon completion of their program, and before their thesis defense.

A student's committee for the Master of Science will consist of the thesis supervisor and two other members. The supervisor and at least one other member must be members of the Bioinformatics graduate program.

### ***Contact Information:***

Genome Sciences Centre, BCCA  
100- 570 West 7<sup>th</sup> Avenue  
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<p>tel: 604-707-5803 (Sharon Ruschkowski) or 604-707- 5473 (Charlotte Watts – admin to Dr. Jones.)</p> <p><b>Fax:</b> 604-876-3561</p> <p><b>Email:</b> bioinformaticsprogram@bcgsc.ca</p> <p><b>Web:</b> bioinformatics.bcgsc.ca</p> <p><b>Contact:</b> Sharon Ruschkowski (program coordinator)</p>	
<p><b>Faculty:</b> <b>Department:</b> <b>Faculty Approval Date:</b></p> <p><b>Effective Session ____ Term ____</b> <b>Year ____ for Change</b></p>	<p><b>Date:</b> March 1, 2006 <b>Contact Person:</b> Sharon Ruschkowski <b>Phone:</b> 604-707-5803 <b>Email:</b> bioinformaticsprogram@bcgsc.ca</p>
<p><b>Proposed Calendar Entry:</b></p> <p><b>BIOF 599 (12) M. Sc. Thesis</b></p>	<p><b>URL:</b></p> <p><b>Present Calendar Entry:</b> None</p> <p><b>Type of Action:</b> New course.</p> <p><b>Rationale:</b></p> <p>M. Sc. Thesis course for program to allow students to graduate with an M. Sc. in Bioinformatics.</p>
<p><b>Proposed Calendar Entry:</b></p> <p><b>BIOF 699 (0) Ph. D Thesis</b></p>	<p><b>URL:</b></p> <p><b>Present Calendar Entry:</b> None</p> <p><b>Type of Action:</b> New course.</p> <p><b>Rationale:</b></p> <p>Ph.D. Thesis course for program to allow students to graduate with a Ph. D in Bioinformatics.</p>