



Faculty of Science

Office of the Dean
St. John's, NL Canada A1B 3X7
Tel: 709 864 8154 Fax: 709 864 3316
deansci@mun.ca www.mun.ca/science

MEETING OF THE FACULTY COUNCIL OF THE FACULTY OF SCIENCE

A regular meeting of the Faculty Council of the Faculty of Science will be held on Wednesday, October 17, 2018 at 1 p.m. in C-2045.

AGENDA

1. **Regrets**
2. **Adoption of the Minutes of September 19, 2018**
3. **Business Arising from the Minutes**
4. **Correspondence:** None
5. **Reports of Standing Committees:**
 - A. **Undergraduate Studies Committee:**
 - a. Department of Computer Science, paper 5.A.a (pages 7-19)
 - i) Proposal for a New Course: COMP 3100, Web programming
 - b. Department of Biochemistry, paper 5.A.b (pages 20-24)
 - i) Proposal for a Special Topics Course: BIOC 4231, Molecular Biology of the Bacterial-Human Interface, for information only
 - B. **Graduate Studies Committee:**
 - a. Department of Ocean Sciences, proposed calendar changes for Marine Biology M.Sc. and PhD programs, paper 5.B.a (pages 25-29)
 - C. **Nominating Committee:** None
 - D. **Library Committee:** None
6. **Report of Teaching Consultant**
7. **Reports of Delegates from Other Councils**
8. **Report of the Dean**
9. **Question Period**
10. **Adjournment**

A handwritten signature in blue ink that reads "Mark Abrahams".

Mark Abrahams, Ph.D.
Dean of Science



Faculty of Science

Office of the Dean
St. John's, NL, Canada A1B 3X7
Tel: 709 864 8154 Fax: 709 864 3316
deansci@mun.ca www.mun.ca/science

FACULTY OF SCIENCE FACULTY COUNCIL OF SCIENCE MINUTES OF MEETING OF SEPTEMBER 19, 2018

A meeting of the Faculty Council of the Faculty of Science was held on Wednesday, September 19, at 1:00 p.m. in room C-2045.

FSC 2612

Present

Biochemistry

Berry, M. Booth, V. Brunton, J. Harding, S. Mulligan, M.

Biology

Chapman, T. Staveley, B.

Chemistry

Bodwell, G. Merschrod, E. Flinn, C.

Computer Science

Bungay, S.

Earth Sciences

Layne, G.

Ocean Sciences

Fletcher, G.

Physics & Physical Oceanography

Curnoe, S. Morrow, M. Poduska, K.

Dean of Science Office

Abrahams, M. Babichuk, N. Foss, K. Fridgen, T. Frizzell, L.
Jackson, G. Mackenzie, T. Zedel, L.

CITL

Todd, A.

Students

Mahmood, A. Saeed, M.

FSC 2613 **Regrets**
Mantyka, S. Sullivan, S.

FSC 2614 **Adoption of Minutes**
Moved: Minutes of May 16, 2018, meeting be adopted (Chapman/Fridgen).
Two Abstentions. Carried.

FSC 2615 **Business Arising: None**

FSC 2616 **Correspondence: None**

FSC 2617 **Reports of Standing Committees:**

A. **Graduate Studies Committee:**

Presented by Len Zedel, Associate Dean, Research and Graduate Studies.

- a.** Department of Mathematics and Statistics, special topics course, STAT 6506, Applied Event History Analysis, approved by the committee and presented to Faculty Council for information only.
- b.** Department of Earth Sciences, special topics courses, EASC 6907, Phase Equilibria Modelling in Metamorphic Petrology, and EASC 6954, Geochemical Proxies in Precambrian Sedimentary Systems, approved by the committee and presented to Faculty Council for information only.

Presented by Graham Layne, Deputy Head (Academic), Department of Earth Sciences.

- c. **Moved:**** Department of Earth Sciences, calendar changes to MSc program proposing the addition of a thesis defense in Geology and Geophysics (Layne/Berry).

The motion is **carried** assuming that the proposal is legal; if new information arises, the proposal will come back to council for approval.

One opposed. Two Abstentions.

- d. **Moved:**** Department of Earth Sciences, calendar changes to PhD program proposing changes to the comprehensive examination requirements in Geology and Geophysics. **Carried.** (Layne/Bodwell).
Two Abstentions.

Presented by Len Zedel, Associate Dean, Research and Graduate Studies.

- e.** Department of Psychology, special topics course, PSYC 6120, Special Topics in Health Psychology, approved by the committee and presented to Faculty Council for information only

B. **Nominating Committee:**

Faculty of Science Committee Matrix presented by Travis Fridgen.

Moved: Committee matrix be approved as presented (Fridgen/Zedel).
Carried. One Abstention.

C. Library Committee: None

FSC 2618 Report of Teaching Consultant:

Gavan Watson will start as new director of CITL in November. Notable that he comes from a background in Science, with a PhD in Science based education, and experience as Associate Director of the Teaching and Learning Centre at Western University.

The report from the CITL external review was released in September. CITL is aiming to respond to Provost by November 2018. Highlights that may impact the Faculty of Science include recommendations around reducing CITL administration of online courses to bring them in line with the practices of campus-based courses and reduce barriers to development. There are also recommendations for further educator supports (teaching and technical supports) embedded within faculties and departments.

The new Teaching and Learning Framework has been released (pending Senate approval). There were no major surprises, and includes the creation of a Senate Committee on Teaching and Learning, the Student Success Collaborative software, the Lead Semester, and the Indigenization Strategy. Notable is the continuation of the Innovation Funding Competition which many in Science have taken advantage of in the past. If the framework is approved, the funding competition is expected to take place over the Winter/Spring 2019 semesters. Expected allocation funds for the competition have not been announced.

FSC 2619 Reports of Delegates from Other Councils: None

FSC 2620 Report of the Dean

Presented by Mark Abrahams, Dean of Science.

1. On the morning of Saturday, September 15, a 20-year-old Faculty of Science student, Felix Marino, collapsed and died suddenly. Felix was the son of the former Head of Biology Paul Marino, and Joyce Marino, a Visiting Assistant Professor in the School of Pharmacy and Anatomy and Physiology Instructor. On behalf of Science Faculty Council, I wanted to offer them our condolences.
2. I want to offer my thanks to Dr. Mary Courage for stepping in as the interim Dean of Science while I was working in the Vice President (Research) office. She did a remarkable job and kept the Faculty of Science operating well through a difficult time.
3. Since I was asked to serve in the VPR office, the Board of Regents suspended my term as Dean. That means that my term has now been extended by 20 months so my term now expires in the spring of 2020.
4. Last night the Dean's office hosted the annual Faculty of Science Awards evening. It was very well attended and by all accounts very successful again.

Thanks go to Dawn Harvey, Melissa Strong, Kelly Foss and Gail Kenny for organizing this event.

5. The Faculty of Science now has two new grant facilitation officers. They are Nicole Babichuk and Lynn Frizzell.
6. Challenges that I am now addressing are replacement faculty and staff positions associated with the Voluntary Retirement Program. Twelve faculty and two staff have taken advantage of this program. What is not clear is what the replacement rate for these retirements will be. I have my first meeting with the Provost on Friday. While I am not expecting an answer on replacement rates, I do want to emphasize the importance of these positions to the aspirations, goals and missions of the Faculty of Science and the University.
7. I also continue to be engaged with bargaining with MUNFA on behalf of the university. You should know that we are currently bargaining with the assistance of a conciliator. While having the 3rd party involved is helpful, you should also know that this is a necessary precondition before MUNFA can place itself in a legal strike position. We have been bargaining 3 of the past 4 weeks and have made good progress on key issues. It is for that reason that the university is dismayed with some of the bargaining updates that have been provided by MUNFA. In response, the university has posted its own bargaining update at www.mun.ca/updates.php. I won't tell you what to think but do ask that you do your due diligence and ask questions to inform yourself.
8. As you should notice, good progress is being made on the Core Science Facility. The project is on budget and on schedule, with the expectation it be operational for September 2020.

FSC 2621

Question Period:

The faculty members welcomed Dr. Mark Abrahams back to his role as Dean, Faculty of Science.

FSC 2622

Adjournment

The meeting adjourned at 1:45 p.m.



Office of the Registrar

St. John's, NL Canada A1C 5S7
Tel: 709 864 8260 Fax: 709 864 2337
www.mun.ca

October 9, 2018

TO: All Members of Faculty Council, Faculty of Science

FROM: Tracey Edmunds, Secretary, Committee on Undergraduate Studies
Faculty of Science (Acting)

SUBJECT: **Proposals for Calendar Changes**

At a meeting held on September 25, 2018, the Faculty of Science Committee on Undergraduate Studies agreed that the following item should be forwarded to Faculty Council for approval:

1. Department of Computer Science

- (a) Proposal for a New Course: COMP 3100 - Web Programming

At a meeting held on September 25, 2018, the Faculty of Science Committee on Undergraduate Studies approved a proposal for a Special Topics Course from the Department of Biochemistry, and agreed that the following item should be forwarded to Faculty Council for information:

1. Department of Biochemistry

- (a) Proposal for a Special Topics Course: BIOC 4231 - Molecular Biology of the Bacterial-Human Interface

Tracey Edmunds

Tracey Edmunds



Department of Computer Science

St. John's, NL Canada A1B3X5
Tel: 709 864 8628 Fax: 709 864 2009
compsci@mun.ca www.mun.ca/computerscience

September 12, 2018

TO: Tracey Edmunds, Secretary
Committee on Undergraduate Studies, Faculty of Science

FROM: Minglun Gong, Department Head
Department of Computer Science

SUBJECT: **New Course Proposal, COMP-3100**

The Department of Computer Science is proposing a new course, COMP-3100 Web Programming. Enclosed is the proposal.

Collegial consultation for this proposal took place at the departmental meetings held February 20, 2018. As part of the consultation process, the proposal was circulated to other academic units on August 16, and copies of the received comments are enclosed.

A handwritten signature in blue ink, appearing to read "M. Gong".

Minglun Gong

/re
Enclosures
c: S. Bungay

Proposal New Course - COMP 3100 Web Programming

Executive Summary

With the introduction of a new undergraduate curriculum in 2016-17, the Department of Computer Science has been phasing out courses in the old program. One of these courses, COMP 3715: Network Computing with WEB Applications, was offered for the last time in Winter 2018. Some of the content of COMP 3715 was moved to a second-year course (one-credit course), COMP 2006. This leaves space for a third-year course in web programming. This new course, COMP 3100, will provide a third-year elective course for students majoring in Computer Science, and in particular would serve those students in the general major. Note that the program requirements for students in the general major include 12 credit-hours in COMP 3000 level courses, and the introduction of the proposed COMP 3100 would provide students with a course in a topic not covered in other existing courses.

Resource Implications: Instructional Costs

None. This course replaces another course (COMP 3715) that has been offered regularly, often twice per year, since Fall 2006.

Consultations

To be distributed to the Faculties of Business Administration, Education, Engineering and Applied Science, Humanities and Social Sciences, Medicine, Science, Schools of Human Kinetics and Recreation, Music, Nursing, Pharmacy, Social Work, Grenfell Campus, and Marine Institute.

Library Holdings and/or Other Resources Required

To be requested.

The costs, if any, associated with this change/these changes can be met from within the existing budget allocation or authorized new funding for the Department of Computer Science.

Signature of Unit Head (if appropriate): _____

Date: _____

Signature of Dean/Associate Vice-President (Academic)/Vice-President:

Date: _____

Sample Course Outline and Method of Evaluation

- Web information systems foundation: (3 hours)
 - HTTP
 - Web servers
 - Browsers and other clients
- Client side: (12 hours)
 - HTML5
 - CSS3
 - JavaScript
 - Browser API
 - Browser Development Tools
 - Mobile web applications
- Server side: (11 hours)
 - CGI
 - Python Server Frameworks (e.g. flask, ...)
 - Node.js
 - npm
- Application frameworks (4 hours)

Method of Evaluation:

Assignments (5)	30%
Midterm exam	20%
Project	20%
Final exam	30%

Texts

Miguel Grinberg, *Flask Web Development: Developing Web Applications with Python*
O'Reilly Media; second edition, 2018 (ISBN-13: 978-1491991732)

Jim Wilson, *Node.js 8 the Right Way: Practical, Server-Side JavaScript That Scales*
Pragmatic Bookshelf; first edition, 2018 (ISBN-13: 978-1680501957)

Zak Ruvalcaba and Anne Boehm, *Murach's HTML5 and CSS3*
Mike Murach & Associates; third edition, 2015 (ISBN-13: 978-1890774837)

Instructor(s)

R. Byrne, A. Fiech, Y. Chen

SUMMARY PAGE FOR SENATE**Approval Form****Course Number and Title**

3100 Web Programming

Abbreviated Course Title

Web Programming

Calendar Change(s)

3100 Web Programming studies the Web information system from a programming perspective. It teaches how Web data are transferred across the network, how to design interactive browser contents, and how to provide dynamic pages from the server.

Pre-requisite(s)

COMP 2006

Credit Restrictions

COMP 3715

Secondary Calendar Changes

3715 Network Computing with WEB Applications studies how distributed applications (e.g., client/server Web applications) are constructed using the Internet. Topics covered include: the socket interface for network communication, client/server applications, browser scripting using Javascript, content generation for web applications (e.g., jsp, php), html/css documents, and the use of cryptography to handle security.

CR: COMP 2006 and COMP 3100

PR: COMP 2711 or COMP 2002

Calendar Entry After Changes

3100 Web Programming studies the Web information system from a programming perspective. It teaches how Web data are transferred across the network, how to design interactive browser contents, and how to provide dynamic pages from the server.

CR: COMP 3715

PR: COMP 2006

3715 Network Computing with WEB Applications studies how distributed applications (e.g., client/server Web applications) are constructed using the Internet. Topics covered include: the socket interface for network communication, client/server applications, browser scripting using Javascript, content generation for web applications (e.g., jsp, php), html/css documents, and the use of cryptography to handle security.

CR: COMP 2006 and COMP 3100

PR: COMP 2711 or COMP 2002

Rationale

This is an essential course for programming the Web in order for automated information processing with computers. The World Wide Web has become the most important platform for digital information exchange despite its short history. The generation of digital contents by machines and human users, and consumption of them in Web browsers entail a full spectrum of practical skills in computer science.

With the introduction of a new undergraduate curriculum in 2016-17, the Department of Computer Science has been phasing out courses in the old program. One of these courses, COMP 3715: Network Computing with WEB Applications, was offered for the last time in Winter 2018. Some of the content of COMP 3715 was moved to a second-year course (one-credit course), COMP 2006. This leaves space for a third-year course in web programming. This new course, COMP 3100, will provide a third-year elective course for students majoring in Computer Science, and in particular would serve those students in the general major. Note that the program requirements for students in the general major include 12 credit-hours in COMP 3000 level courses, and the introduction of the proposed COMP 3100 would provide students with a course in a topic not covered in other existing courses.

Consultations Sought From

Comments Received

Faculty of Business Administration	No
Faculty of Education	No
Faculty of Engineering and Applied Science	Yes
Faculty of Humanities and Social Sciences	No
Faculty of Medicine	Yes
Faculty of Science	Yes (Chemistry)
Grenfell Campus	No
Marine Institute	Yes
School of Human Kinetics and Recreation	Yes
School of Music	No
School of Nursing	No
School of Pharmacy	Yes
School of Social Work	No

Library Report Received Yes

Signature: Dean, Associate Vice-President (Academic) or Vice-President

Name _____

FOR OFFICE USE ONLY

APPROVAL GRANTED BY SENATE COMMITTEE ON UNDERGRADUATE STUDIES

Secretary: _____

Date: _____

Subject Consultation on new course proposal, COMP-3100
From CS General <compsci@mun.ca>
To <HSS@mun.ca>, <pacoady@mun.ca>, <mcollett@mun.ca>, <engrconsult@mun.ca>, <lrobinson@grenfell.mun.ca>, <ssedean@grenfell.mun.ca>, <thennessey@grenfell.mun.ca>, <leroehr@mun.ca>, <miugconsultations@mi.mun.ca>, <deanofmedicine@med.mun.ca> [6 more...](#)
Reply-To <compsci@mun.ca>
Reply-To <compsci@mun.ca>
Date 2018-08-16 15:39



-
- [New-Course-COMP-3100.pdf](#) (~26 KB)

Hello,

The Department of Computer Science plans to offer a new course, COMP-3100: Web Programming. A copy of the course proposal is attached for your review. We would appreciate any comments by September 12, 2018.

Regards.

--
Department of Computer Science
Memorial University of Newfoundland
St. John's, NL A1B 3X5
Phone: (709) 864-8652
Fax: (709) 864-2009

7 replies as of Sept. 11

Chemistry

Subject new course proposal COMP 3100
From Department of Chemistry Consult <chemconsult@mun.ca>
To <compsci@mun.ca>
Date 2018-08-30 12:02



Hello,

I have reviewed the proposal on behalf of the chemistry department. I fully support the creation of COMP 3100.

Sincerely,

Chris Flinn
Deputy Head, Undergraduate Studies
Chemistry Department

Engineering

Subject Re: Consultation on new course proposal, COMP-3100
From Engineering Consult <enrconsult@mun.ca>
To <compsci@mun.ca>
Cc Andrew Fisher <adfisher@mun.ca>, Howard Heys <hheys@mun.ca>, Jayde Edmunds <edmundsj@mun.ca>, <dpeters@mun.ca>
Date 2018-08-20 08:29



Thank you for the opportunity to comment on the proposal for a new course COMP 3100 "Web Programming".

The next regular meeting of the Committee on Undergraduate Studies of the Faculty of Engineering and Applied Science is scheduled for September 19, after your deadline for a reply. I offer my support for the proposed new course, together with the following comment from the Head of the Department of Electrical and Computer Engineering:

"Computer Engineering students have regularly taken COMP 3715 as a technical elective course in the past. I believe that the proposed COMP 3100 will be a suitable alternative to that."

Yours sincerely,

Dr. Glyn George, Chair
 Committee on Undergraduate Studies
 Faculty of Engineering and Applied Science
 Memorial University of Newfoundland
 St. John's NL A1B 3X5

On 2018-08-16 15:39, CS General wrote:

Hello,

The Department of Computer Science plans to offer a new course, COMP-3100: Web Programming. A copy of the course proposal is attached for your review. We would appreciate any comments by September 12, 2018.

Regards.

HKR

Subject Re: Consultation on new course proposal, COMP-3100
From Rohr, Linda <lerohr@mun.ca>
To compsci@mun.ca <compsci@mun.ca>
Date 2018-09-12 08:58



No concerns from HKR on the new course proposal, COMP 3100.

Linda

Linda E. Rohr PhD

Dean, School of Human Kinetics & Recreation

Memorial University

t: 709.864.8129 f: 709.864.7531 e: lerohr@mun.ca

PE 2027

From: CS General <compsci@mun.ca>
Reply-To: "compsci@mun.ca" <compsci@mun.ca>
Date: Thursday, August 16, 2018 at 3:40 PM
To: Faculty of Humanities and Social Sciences <hss@mun.ca>, "Coady, Peggy" <pacoady@mun.ca>, "Collett, Meghan" <mcollett@mun.ca>, "enrconsult@mun.ca" <enrconsult@mun.ca>, "Irobinson@grenfell.mun.ca" <Irobinson@grenfell.mun.ca>, "ssedean@grenfell.mun.ca" <ssedean@grenfell.mun.ca>, "thennessey@grenfell.mun.ca" <thennessey@grenfell.mun.ca>, Linda Rohr <lerohr@mun.ca>, "miugconsultations@mi.mun.ca" <miugconsultations@mi.mun.ca>, "deanofmedicine@med.mun.ca" <deanofmedicine@med.mun.ca>, "Sutherland, Ian D" <isutherland@mun.ca>, DeanNurse <DeanNurse@mun.ca>, "pharminfo@mun.ca" <pharminfo@mun.ca>, Dean of Science <deansci@mun.ca>, adeanugradswk <adeanugradswk@mun.ca>, Library Correspondence <univlib@mun.ca>
Subject: Consultation on new course proposal, COMP-3100

Hello,

The Department of Computer Science plans to offer a new course,
COMP-3100: Web Programming. A copy of the course proposal is attached
for your review. We would appreciate any comments by September 12, 2018.

Subject RE: Consultation on new course proposal, COMP-3100
From MIUG Consultations <MIUGconsultations@mi.mun.ca>
To compsci@mun.ca <compsci@mun.ca>
Date 2018-09-04 15:10



Thank you for the opportunity to review and comment on the proposal for the new course COMP 3100. This will have no impact on Marine Institute programs and we support the proposal.

Regards,
Bev

Bev Fleet
Chair, Undergraduate Studies Committee
Marine Institute, Memorial University
TEL: 709-778-0369
FAX: 709-778-0535
Bev.Fleet@mi.mun.ca

-----Original Message-----

From: CS General [mailto:compsci@mun.ca]
Sent: Thursday, August 16, 2018 3:40 PM
To: HSS@mun.ca; pacoady@mun.ca; mcollett@mun.ca; enqrconsult@mun.ca;
lrobinson@grenfell.mun.ca; ssedean@grenfell.mun.ca; thennessey@grenfell.mun.ca;
lerohr@mun.ca; MIUG Consultations <MIUGconsultations@mi.mun.ca>;
deanofmedicine@med.mun.ca; isutherland@mun.ca; deanNurse@mun.ca; pharminfo@mun.ca;
deansci@mun.ca; adeanugradswk@mun.ca; univlib@mun.ca
Subject: Consultation on new course proposal, COMP-3100

Hello,

The Department of Computer Science plans to offer a new course, COMP-3100: Web Programming. A copy of the course proposal is attached for your review. We would appreciate any comments by September 12, 2018.

Regards.

--

Department of Computer Science
Memorial University of Newfoundland
St. John's, NL A1B 3X5
Phone: (709) 864-8652
Fax: (709) 864-2009

Subject RE: Consultation on new course proposal, COMP-3100
From <cvarady@mun.ca>
To <compsci@mun.ca>
Date 2018-08-17 14:39



Attention: Department of Computer Science

The Faculty of Medicine is supportive of the proposal for the new course, COMP-3100: Web Programming.

Regards

CATHY VARDY, MD, FRCPC | VICE DEAN AND PROFESSOR OF PEDIATRICS

Faculty of Medicine
Health Sciences Centre

Room M2M319

Memorial University of Newfoundland
St. John's, Newfoundland | A1B 3V6

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Destination Excellence: Faculty of Medicine Strategic Plan 2018-2023

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Begin forwarded message:

From: CS General <compsci@mun.ca>
Date: August 16, 2018 at 3:39:53 PM NDT
To: <HSS@mun.ca>, <pacoady@mun.ca>, <mcollett@mun.ca>, <enqrconsult@mun.ca>, <lrobinson@grenfell.mun.ca>, <ssedean@grenfell.mun.ca>, <thennessey@grenfell.mun.ca>, <lerohr@mun.ca>, <miugconsultations@mi.mun.ca>, <deanofmedicine@med.mun.ca>, <jsutherland@mun.ca>, <deanNurse@mun.ca>, <pharminfo@mun.ca>, <deansci@mun.ca>, <adeanugradswk@mun.ca>, <univlib@mun.ca>
Subject: Consultation on new course proposal, COMP-3100
Reply-To: <compsci@mun.ca>

Hello,

The Department of Computer Science plans to offer a new course, COMP-3100: Web Programming. A copy of the course proposal is attached for your review. We would appreciate any comments by September 12, 2018.

Regards.

--

Department of Computer Science

Pharmacy

Subject Consultation on new course proposal, COMP-3100
From Davis, Erin <emdavis@mun.ca>
To compsci@mun.ca <compsci@mun.ca>
Date 2018-08-20 13:59



There are no concerns from Pharmacy regarding the new course proposal.

Erin

DR. ERIN DAVIS
ASSOCIATE DEAN UNDERGRADUATE STUDIES
Assistant Professor | School of Pharmacy
Clinical Assistant Professor | Discipline of Family Medicine
Memorial University of Newfoundland

Health Sciences Centre
300 Prince Philip Dr | St. John's, NL | A1B 3V6
P 709 777 7232 | F 709 777 7044

www.mun.ca/pharmacy

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Subject RE: Consultation on new course proposal, COMP-3100
From Ambi, Alison <aambi@mun.ca>
To compsci@mun.ca <compsci@mun.ca>
Date 2018-08-17 09:52



I have reviewed the course proposal, and as COMP-3100 is a re-packaging of content that has been taught previously in other courses, no new investment in library resources will be required.

Alison Ambi
Head, Collection Strategies
709 864 7125

QEII Library
Memorial University of Newfoundland
www.library.mun.ca

-----Original Message-----

From: Library Correspondence
Sent: August 17, 2018 8:31 AM
To: Ambi, Alison <aambi@mun.ca>
Subject: FW: Consultation on new course proposal, COMP-3100

-----Original Message-----

From: CS General [mailto:compsci@mun.ca]
Sent: Thursday, August 16, 2018 3:40 PM
To: Faculty of Humanities and Social Sciences <hss@mun.ca>; Coady, Peggy <pacoady@mun.ca>; Collett, Meghan <mcollett@mun.ca>; engrconsult@mun.ca; lrobinson@grenfell.mun.ca; ssedean@grenfell.mun.ca; thennessey@grenfell.mun.ca; Rohr, Linda <lerohr@mun.ca>; miugconsultations@mi.mun.ca; deanofmedicine@med.mun.ca; Sutherland, Ian D <isutherland@mun.ca>; DeanNurse <DeanNurse@mun.ca>; pharminfo@mun.ca; Dean of Science <deansci@mun.ca>; adeanugradswk@mun.ca; Library Correspondence <univlib@mun.ca>
Subject: Consultation on new course proposal, COMP-3100

Hello,

The Department of Computer Science plans to offer a new course, COMP-3100: Web Programming. A copy of the course proposal is attached for your review. We would appreciate any comments by September 12, 2018.

Regards.

--
Department of Computer Science
Memorial University of Newfoundland
St. John's, NL A1B 3X5
Phone: (709) 864-8652
Fax: (709) 864-2009

PROPOSAL FOR A SPECIAL TOPICS COURSE

BIOCHEMISTRY 4231 - Molecular Biology of the Bacterial-Human Interface

RATIONALE:

The department of biochemistry has recently identified "Molecular Biochemistry of Health and Disease" as one of its primary research foci. The proposed course will educate undergraduates in one aspect of this focus area – namely the molecular biology of the bacteria that inhabit or invade human bodies, how these bacteria get established, and the biochemical mechanisms by which some bacterial pathogens can damage the host.

The course will be of interest to both Biochemistry and Biochemistry(Nutrition) students especially those who plan careers in biomedical health professions. While the emphasis of the proposed course is on bacteria, it should interface and integrate well with other courses offered by the department that deal with human metabolism, gene expression, and biochemical nutrition.

DESCRIPTION

This course will examine the molecular biology of bacteria in their interactions with humans. The course will focus primarily on pathogenic bacteria but the role of commensal bacteria will not be overlooked. It is expected that the course will: review gene expression and its regulation in bacteria; signal recognition mechanisms in bacteria with a particular emphasis on two-component regulatory systems; bacterial secretory systems and their relation to flagellae and pili; mechanisms of bacterial adhesion/attachment to human cells; the pathogenic response in select bacteria; bacterial exotoxins and their mechanisms of action; non ribosomal peptide synthesis of toxins and antibiotics; commensal bacteria and their roles in human health; and, bacterial survival strategies in the face of resistance. Detailed discussion of the above may include mechanisms from: enteropathogenic and uropathogenic strains of *Escherichia coli*, *Corynebacterium diphtheriae*, *Vibrio cholerae*, *Salmonella typhi*, and other bacteria as appropriate.

PREREQUISITE:

BIOC 3107 or permission of the instructor

COURSE INSTRUCTOR:

Martin E. Mulligan

SAMPLE EVALUATION

Midterm Examination*	20%	(scheduled for Week 5 of the semester)
Research Paper Presentation	30%	
Writing Assignment	10%	
Participation	5%	
Final Examination*	35%	

*Exams may consist of a combination of short answer questions and/or essay questions.

RESEARCH PAPER PRESENTATION

Each student will give a presentation of a research paper on a topic related to the course material to the course instructor. Presentations will be 15-20 min in length and will be expected to present the relevant background, results and overall significance of the paper. Questions may be asked by the instructor throughout the presentation. Presentations will be scheduled during the last third of the semester; no presentation + questions shall exceed 30 mins.

WRITING ASSIGNMENT

Each student will write a dialogue on the bacterial-human interface. Sample dialogues will be provided to guide and/or inspire students.

TEXT

There is no text for the course. Some material will be drawn from “Molecular Genetics of Bacteria, 4th Ed.” A copy of which will be placed on reserve in the Library for consultation. Readings from the scientific literature will be assigned for each topic. It is anticipated that these will primarily be review articles, and open access articles will be used whenever possible. The course instructor will have a copy in the event that online access fails.

Sample reviews pertinent to multiple topics in the course:

- Lustrì, B.C., Sperandio, V. and Moreira, C.G., 2017. Bacterial chat: intestinal metabolites and signals in host-microbiota-pathogen interactions. *Infection and immunity*, pp.IAI-00476.
- Ribet, D. and Cossart, P., 2015. How bacterial pathogens colonize their hosts and invade deeper tissues. *Microbes and Infection*, 17(3), pp.173-183.
- Short, F.L., Murdoch, S.L. and Ryan, R.P., 2014. Polybacterial human disease: the ills of social networking. *Trends in microbiology*, 22(9), pp.508-516.

PROPOSED OUTLINE

The following outline lists the topics as they might be developed/taught during the course. As this would be the first offering of the course, the list of topics will likely be fine-tuned prior to the start of the course, and the order of topic presentation may change. Sample readings are indicated for each topic. These readings would form the basis for both the lectures and for student review of the lecture material.

- WEEK 1 Regulation of gene expression in bacterial cells
 Review of transcription and translation; RNA polymerase and sigma factors; positive and negative mechanisms of transcription regulation; mechanisms of regulating translation
- Chapter 2 from *Molecular Genetics of Bacteria*, 4th Edn
- WEEK 2 Signal recognition mechanisms in bacteria
 Two-component signal transduction systems – theme and variations; other pathways (STYK phosphatases, cyclic-di-GMP), quorum-sensing and signal systems (HSLs and peptides) in general
- Chapters 13 & 14 from *Molecular Genetics of Bacteria*, 4th Edn
 - Breland, E.J., Eberly, A.R. and Hadjifrangiskou, M., 2017. An overview of two-component signal transduction systems implicated in extra-intestinal pathogenic *E. coli* infections. *Frontiers in cellular and infection microbiology*, 7, p.162.
 - Novak, E.A., Sultan, S.Z. and Motaleb, M.A., 2014. The cyclic-di-GMP signaling pathway in the Lyme disease spirochete, *Borrelia burgdorferi*. *Frontiers in cellular and infection microbiology*, 4, p.56.
 - Wang, B. and Muir, T.W., 2016. Regulation of virulence in *Staphylococcus aureus*: molecular mechanisms and remaining puzzles. *Cell Chem Biol* 23: 214–224.
- WEEK 3 Secretory systems in bacteria
 Protein synthesis, protein targeting in bacterial cells, the Sec pathway, classes of secretion system, type III secretion systems and injectisomes, autotransporters, type VI secretion systems, gram-positive systems
- Chapter 14 from *Molecular Genetics of Bacteria*, 4th Edn
 - Hachani, A., Wood, T.E. and Filloux, A., 2016. Type VI secretion and anti-host effectors. *Current opinion in microbiology*, 29, pp.81-93.
 - Notti, R.Q. and Stebbins, C.E., 2016. The structure and function of type III secretion systems. *Microbiology spectrum*, 4(1).
 - Costa, T.R., Felisberto-Rodrigues, C., Meir, A., Prevost, M.S., Redzej, A., Trokter, M. and Waksman, G., 2015. Secretion systems in Gram-negative bacteria: structural and mechanistic insights. *Nature Reviews Microbiology*, 13(6), p.343.
- WEEK 4 Adherence
 role of pili and flagellae in the mechanism of bacterial attachment to host human cells

- Molecular Mechanism of bacterial type 1 and P pili assembly by Andreas Busch, Gilles Phan, and Gabriel Waksman *Phil. Trans. R. Soc. A* 373: 20130153
- Switches, cross-talk and memory in *Escherichia coli* adherence by Nicola J. Holden, David L. Gally *Journal of Medical Microbiology* 53: 585-593 (2004)
- Rossez, Y., Wolfson, E.B., Holmes, A., Gally, D.L. and Holden, N.J., 2015. Bacterial flagella: twist and stick, or dodge across the kingdoms. *PLoS pathogens*, 11(1), p.e1004483.

WEEK 5 Midterm Exam

WEEK 6 Regulation of Bacterial Virulence

Pathogenicity islands; Regulation of the synthesis of: Cholera Toxin and other virulence determinants, Shiga toxins, and *Staphylococcus* toxins

- Chapters 8 & 13 from *Molecular Genetics of Bacteria*, 4th Edn
- Vakulskas, C.A., Potts, A.H., Babitzke, P., Ahmer, B.M. and Romeo, T., 2015. Regulation of bacterial virulence by Csr (Rsm) systems. *Microbiology and Molecular Biology Reviews*, 79(2), pp.193-224.
- Novick, R.P. and Ram, G., 2017. Staphylococcal pathogenicity islands—movers and shakers in the genomic firmament. *Current opinion in microbiology*.
- Dorman, C.J. and Dorman, M.J., 2017. Control of virulence gene transcription by indirect readout in *Vibrio cholerae* and *Salmonella enterica* serovar Typhimurium. *Environmental microbiology*, 19(10), pp.3834-3845.

WEEK 7 Bacterial exotoxins and their mechanisms of action (1)

Classification of bacterial toxins; exotoxins and their targets; diphtheria toxin and ADP-ribosylation

- Barth, H. and Ernst, K., 2016. Chaperones and ADP-Ribosylating Bacterial Toxins. *Microbial Toxins*, pp.1-22.
- Galán, J.E., 2016. Typhoid toxin provides a window into typhoid fever and the biology of *Salmonella* Typhi. *Proceedings of the National Academy of Sciences*, 113(23), pp.6338-6344.
- Chekabab, S.M. and Harel, J., 2016. *Escherichia coli* Shiga Toxin. *Microbial Toxins*, pp.1-15.
- Simon, N.C., Aktories, K. and Barbieri, J.T., 2014. Novel bacterial ADP-ribosylating toxins: structure and function. *Nature reviews Microbiology*, 12(9), p.599.

WEEK 8 Non-ribosomal peptide synthesis

NRPS systems and polyketide synthases, biochemistry and molecular biology, molecules synthesized by NRPS systems: antibiotics and genotoxins

- Süßmuth, R.D. and Mainz, A., 2017. Nonribosomal peptide synthesis—principles and prospects. *Angewandte Chemie International Edition*, 56(14), pp.3770-3821.
- Donia, M.S. and Fischbach, M.A., 2015. Small molecules from the human microbiota. *Science*, 349(6246), p.1254766.
- Van Lanen, S.G., 2017. Biosynthesis: SAM cycles up for colibactin. *Nature chemical biology*, 13(10), p.1059.

- WEEK 9 Bacterial exotoxins and their mechanisms of action (2)
 Genotoxins (e.g. CDT and colibactin), structure and synthesis, cellular targets and modes of action
- Martin, O.C., Frisan, T. and Mihaljevic, B., 2017. Bacterial Genotoxins as the Interphase Between DNA Damage and Immune Response. *Microbial Toxins*, pp.1-20.
 - Taieb, F., Petit, C., Nougayrède, J.P. and Oswald, E., 2016. The Enterobacterial Genotoxins: Cytolethal Distending Toxin and Colibactin. *EcoSal Plus*, 7(1).
 - Faïs, T., Delmas, J., Barnich, N., Bonnet, R. and Dalmasso, G., 2018. Colibactin: More Than a New Bacterial Toxin. *Toxins*, 10(4), p.151.
- WEEK 10 Goodfellas: biofilms, commensal bacteria, the gut and other microbiomes
- Proctor, D.M. and Relman, D.A., 2017. The landscape ecology and microbiota of the human nose, mouth, and throat. *Cell host & microbe*, 21(4), pp.421-432.
 - Donia, M.S. and Fischbach, M.A., 2015. Small molecules from the human microbiota. *Science*, 349(6246), p.1254766.
 - Louis, P., Hold, G.L. and Flint, H.J., 2014. The gut microbiota, bacterial metabolites and colorectal cancer. *Nature Reviews Microbiology*, 12(10), p.661.
 - Donaldson, G.P., Lee, S.M. and Mazmanian, S.K., 2016. Gut biogeography of the bacterial microbiota. *Nature Reviews Microbiology*, 14(1), p.20.
- WEEK 11 The three Fates: persistence, replication, and escape - Long-term bacterial survival: *Salmonella* and *Staphylococcus*, and possibly *Helicobacter*
- Galán, J.E., 2016. Typhoid toxin provides a window into typhoid fever and the biology of *Salmonella* Typhi. *Proceedings of the National Academy of*
 - Hume, P.J., Singh, V., Davidson, A.C. and Koronakis, V., 2017. Swiss army pathogen: the *Salmonella* entry toolkit. *Frontiers in cellular and infection microbiology*, 7, p.348.
 - LaRock, D.L., Chaudhary, A. and Miller, S.I., 2015. *Salmonellae* interactions with host processes. *Nature Reviews Microbiology*, 13(4), p.191.
 - Horn, J., Stelzner, K., Rudel, T. and Fraunholz, M., 2017. Inside job: *Staphylococcus aureus* host-pathogen interactions. *International Journal of Medical Microbiology*.
 - Abadi, A.T.B., 2017. Strategies used by *Helicobacter pylori* to establish persistent infection. *World journal of gastroenterology*, 23(16), p.2870.
- WEEK 12 Bacterial defence strategies
 Phase variation mechanisms in bacteria, e.g. *Bordetella pertussis*, *Salmonella*
- Chapter 9 from *Molecular Genetics of Bacteria*, 4th Edn
 - Holden, N.J. and Gally, D.L., 2004. Switches, cross-talk and memory in *Escherichia coli* adherence. *Journal of medical microbiology*, 53(7), pp.585-593.
 - Rossez, Y., Wolfson, E.B., Holmes, A., Gally, D.L. and Holden, N.J., 2015. Bacterial flagella: twist and stick, or dodge across the kingdoms. *PLoS pathogens*, 11(1), p.e1004483.

Proposed calendar changes to the Marine Biology Masters and PhD programs

We wish to change our calendar entries to more closely reflect how our programs have evolved over the past few years and with our changing complement of faculty:

- 1) We would like to change our areas of concentration from: Ocean Ecology, Functional Biology of Marine Organisms, Fisheries and Aquaculture, and Oceans and Environment. To: Biological Oceanography, Ecology and Evolution, Fisheries and Aquaculture, Functional Biology of Marine Organisms, and Marine Biogeochemistry.
- 2) We would like to remove reference to very old course numbers.
- 3) We would like to make reference to our recently acquired course block: OCSC 7500-7515 Special Topics in Ocean Sciences

25.17 Marine Biology

- www.mun.ca/sgs/contacts/sgscontacts.php
- www.mun.ca/science
- www.mun.ca/osc

The degree of Master of Science (M.Sc.) is offered in Marine Biology by full-time and part-time study through the Department of Ocean Sciences. Areas of concentration include: Biological Oceanography, Ocean Ecology, Ecology and Evolution, Functional Biology of Marine Organisms, Fisheries and Aquaculture, and Marine Biogeochemistry ~~Oceans and Environment~~.

25.17.1 Admission and Program of Study

1. Admission into the Master of Science degree program in Marine Biology is normally restricted to candidates holding at least a Bachelor of Science degree with second class Honours. When circumstances warrant, the requirement for a second class Honours may be waived by the School of Graduate Studies on the recommendation of the Head of the Department.
2. Each student will be assigned a Supervisory Committee consisting of the Supervisor and at least one other member. Within three months of the first registration in the M.Sc. degree program, the student will meet with the student's Supervisory Committee. Within six months, the student and the Supervisory Committee will agree on a written thesis proposal outlining the objectives, methods, timetable and funding for the project, and provide the proposal (signed by the student and the supervisory committee) to the Head for inclusion in the student's file.
3. A student is required to complete a minimum of 9 credit hours of graduate program courses as follows:
 - Ocean Sciences 7000
 - One of Ocean Sciences 7100 or 7200
 - 3 additional credit hours selected from other Ocean Sciences graduate courses or relevant courses in other Departments as approved by the Supervisory Committee
4. All course requirements should be completed within four semesters from the date of first registration in the M.Sc. degree program.
5. A student is required to give an oral presentation to the Department on the results of the student's research. This presentation should be given after completion of a thesis draft.

6. The M.Sc. degree program will conclude with a thesis examination as prescribed in the School of Graduate Studies **General Regulations, Theses and Reports**.

25.17.2 Courses

A selection of the following graduate courses will be offered to meet the requirements of candidates, as far as the resources of the Department will allow.

- OCSC 7000 Graduate Core Seminar (*cross-listed as Biology 7000*)
- OCSC 7100 Biological Oceanography (*credit cannot be obtained for both OCSC 7100 and the former Biology/OCSC 7531*)
- OCSC 7200 Adaptations to the Marine Environment (*credit cannot be obtained for both OCSC 7200 and the former Biology/OCSC 7561*)
- OCSC 7300 Plankton Dynamics (*credit cannot be obtained for both OCSC 7300 and the former Biology/OCSC 7540*)
- OCSC 7400 Fisheries Resource Management (*credit cannot be obtained for both OCSC 7400 and the former Biology/OCSC 7551*)
- OCSC 7500-7515 Special Topics in Ocean Sciences

Clean version:

25.17 Marine Biology

- www.mun.ca/sgs/contacts/sgscontacts.php
- www.mun.ca/science
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25.17.1 Admission and Program of Study

7. Admission into the Master of Science degree program in Marine Biology is normally restricted to candidates holding at least a Bachelor of Science degree with second class Honours. When circumstances warrant, the requirement for a second class Honours may be waived by the School of Graduate Studies on the recommendation of the Head of the Department.
8. Each student will be assigned a Supervisory Committee consisting of the Supervisor and at least one other member. Within three months of the first registration in the M.Sc. degree program, the student will meet with the student's Supervisory Committee. Within six months, the student and the Supervisory Committee will agree on a written thesis proposal outlining the objectives, methods, timetable and funding for the project, and provide the proposal (signed by the student and the supervisory committee) to the Head for inclusion in the student's file.
9. A student is required to complete a minimum of 9 credit hours of graduate program courses as follows:
 - Ocean Sciences 7000
 - One of Ocean Sciences 7100 or 7200

- 3 additional credit hours selected from other Ocean Sciences graduate courses or relevant courses in other Departments as approved by the Supervisory Committee
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 11. A student is required to give an oral presentation to the Department on the results of the student's research. This presentation should be given after completion of a thesis draft.
 12. The M.Sc. degree program will conclude with a thesis examination as prescribed in the School of Graduate Studies **General Regulations, Theses and Reports**.

25.17.2 Courses

A selection of the following graduate courses will be offered to meet the requirements of candidates, as far as the resources of the Department will allow.

- OCSC 7000 Graduate Core Seminar (*cross-listed as Biology 7000*)
- OCSC 7100 Biological Oceanography
- OCSC 7200 Adaptations to the Marine Environment
- OCSC 7300 Plankton Dynamics
- OCSC 7400 Fisheries Resource Management
- OCSC 7500-7515 Special Topics in Ocean Sciences

Regulations Governing the Degree of Doctor of Philosophy

34.25 Marine Biology

- www.mun.ca/sqs/contacts/sqscontacts.php
- www.mun.ca/science
- www.mun.ca/osc

The Degree or Doctor of Philosophy (Ph.D) is offered in Marine Biology by full-time and part-time study through the Department of Ocean Sciences. Areas of concentration include: Biological Oceanography, Ocean Ecology, Ecology and Evolution, Functional Biology of Marine Organisms, Fisheries and Aquaculture, and Marine Biogeochemistry ~~Oceans and Environment~~.

34.25.1 Admission and Program of Study

1. Admission into the Ph.D. program in Marine Biology is normally restricted to candidates holding a Master's Degree or its equivalent. In exceptional circumstances, a candidate with a B.Sc. (Honours) Degree who has spent not less than 12 months in an M.Sc. Degree program may be recommended for transfer into a Ph.D. program, provided that the candidate can demonstrate, to the satisfaction of the Department of Ocean Sciences, the candidate's ability to pursue research at the doctoral level.
2. Each student will be assigned a Supervisory Committee consisting of the Supervisor and at least one other member. Within three months of the first registration in the Ph.D. degree program, a student will meet with the student's Supervisory Committee. Within nine months, the student and the Supervisory Committee will agree on a written thesis proposal outlining the objectives, methods,

timetable and funding for the project, and provide the proposal (signed by the student and the supervisory committee) to the Head for inclusion in the student's file.

3. A student is normally required to complete a minimum of 6 credit hours of graduate program courses as follows:
 - Ocean Sciences 7100 or 7200
 - Ocean Sciences 7000 or relevant course as approved by the Supervisory Committee
4. All course requirements should be completed within five semesters from the date of first registration in the Ph.D. program.
5. Normally, upon completion of required course work the student shall undertake a mandatory comprehensive examination, following the **General Regulations, Comprehensive Examinations, Ph.D. and Psy.D, Comprehensive Examination**. The comprehensive examination will be both written and oral. A student should consult the Departmental guidelines for further information and a detailed description of the content of the Comprehensive Examination.
6. The Ph.D. program will conclude with the examination and oral defense of the completed thesis in accordance with the School of Graduate Studies **General Regulations, Theses and Reports**.

34.25.2 Courses

A selection of the following graduate courses will be offered to meet the requirements of candidates, as far as the resources of the Department will allow.

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- OCSC 7100 Biological Oceanography (~~credit cannot be obtained for both OCSC 7100 and the former Biology/OCSC 7531~~)
- OCSC 7200 Adaptations to the Marine Environment (~~credit cannot be obtained for both OCSC 7200 and the former Biology/OCSC 7561~~)
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Clean version:

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Degree who has spent not less than 12 months in an M.Sc. Degree program may be recommended for transfer into a Ph.D. program, provided that the candidate can demonstrate, to the satisfaction of the Department of Ocean Sciences, the candidate's ability to pursue research at the doctoral level.

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 - Ocean Sciences 7100 or 7200
 - Ocean Sciences 7000 or relevant course as approved by the Supervisory Committee
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