



FACULTY OF SCIENCE

COUNCIL OF THE FACULTY OF SCIENCE

Notice of Meeting
Tuesday, February 12, 2019
at 3:00pm – 4:30pm
306 Lumbers

Agenda

1. Call to Order and Approval of Agenda
2. Chair's Remarks
3. Approval of Minutes of December 11, 2018 meeting
4. Business Arising
5. Inquiries and Communications
 - Senate Synopsis: meeting of December 13, 2018
 - Senate Synopsis: meeting of January 24, 2019
6. Dean's Report to Council
7. Associate Deans' and Head of Bethune College Remarks
8. Reports from Science Representatives on Senate Committees
9. Reports from Standing Committees of Council
 - 9.1 Executive Committee
 - 9.1.1 Ratification of nomination: Standing Committee of Council
 - 9.1.2 Call for Expressions of Interest in Membership on Senate Committees and Other Positions Elected by Senate
 - 9.2 Curriculum Committee (consent agenda items)
10. Other Business
 - Update on the FSc Decanal Search



FACULTY OF SCIENCE

COUNCIL OF THE FACULTY OF SCIENCE

Minutes

Tuesday, December 11, 2018

at 3:00pm – 4:30pm

306 Lumbers

Attendance: P. Wilson (Chair), M. H. Armour, D. R. Hastie, M. M. Horbatsch, T. K. Kirchner, M. McCall, A. Chow, N. Madras, D. Hastie, P. J. Szeptycki, H. Kouyoumdjian, M. Robin, P. L. Lakin-Thomas, A. Mills, R. Tsushima, J. Amanatides, R. Metcalfe, D. Hossain, K. Kroker, G. G. Lavoie, R. McLaren, Elwick, D. Golemi-Kotra, T. Kelly, T. Baumgartner, J. Trinh, S. Siyakatshana (Assistant Secretary)

Guests: H. McLellan, B. Sheeller & M. Hough

1. Call to Order and Approval of Agenda

The Chair of Council, P. Wilson called the meeting to order and the Agenda was adopted as presented.

2. Chair's Remarks

P. Wilson welcomed Council members and thanked them for their hardwork during the fall term. She went on to wish them all a pleasant holiday season.

3. Approval of Minutes of November 13, 2018 meeting

The Minutes were approved.

4. Business Arising

There were no Business Arising.

5. Inquiries and Communications

Council noted the Senate Synopsis of November 22, 2018.

6. Dean's Report to Council

Don Hastie presented the Dean's report on behalf of EJ Janse van Rensburg, the interim Dean who was away.

Don Hastie reported that Paul Sanberg, Bryden winner and Science alumnus visited the Faculty on Nov. 19, 2018. He toured the YSciCore Analytical Facility led by Derek Wilson and the Psychology lab for Jennifer Steeves.

The annual BeeCon conference by the Faculties of Science and Environmental Studies was held on Nov. 23, 2018.

Don Hastie congratulated the following faculty members;

- Steven Connor (Biology) received a Canada Research Chair in Neurophysiology (Tier 2).
- George Zoidl (Biology) had his Canada Research Chair in Molecular and Cellular Neuroscience (Tier 1) renewed.

The Associate Dean reminded Council of the following;

- That applications for the third batch of York Science Fellowships was now online and the deadline was January 4, 2019.
- The deadline for the President's Staff Recognition Awards was January 15, 2019.

He invited everyone to the Faculty of Science Holiday Reception to be held on December 19, 2018, at the Schulich Dining Hall.

Don Hastie announced and encouraged Council members to attend the Honours and Awards Evening to be held on January 16, 2019. He added that the keynote speaker was Samer Bishay, President and CEO of Iristel & Ice Wireless. Samer is a graduate of the Space & Communications program at York University, with an Honours Bachelor of Science Degree.

He concluded his report to Council by wishing everyone a merry holiday season.

7. Associate Deans' and Head of Bethune College Remarks

John Amanatides invited Council members to the Bethune College end of year celebration on December 21st.

8. Reports from Science Representatives on Senate Committees

Associate Dean Don Hastie reminded faculty members on the AEF deadline of December 15th and the anomalies exercise deadline for the Dean's Office, January 10th.

9. Reports from Standing Committees of Council

9.1 Executive Committee

Curriculum Committee (consent agenda items)

Council approved the Curriculum Committee items.

10. Other Business

10.1 FSc Decanal Search: Position profile

Council noted the feedback from Lyndon Martin, Chair, FSc Search Committee.

10.2 Regarding the Markham Campus, faculty members expressed concern on the wisdom of pursuing the Markham campus construction through fundraising when the campus's current laboratories' problems have not been solved.

Motion was moved, seconded and carried to adjourn the meeting.

Chair of Council, P. Wislon

S. Siyakatshana, Assistant Secretary of Council

The Senate of York University

Synopsis

**The 652nd Meeting of Senate
held on Thursday, December 13, 2018**

Remarks

On behalf of Senate, the Chair, Professor Franck van Breugel, thanked Senior Assistant Secretary of the University Bob Everett, who is retiring from the Secretariat after 31 years of service, for his decades of shepherding Senate's governance. The Chair highlighted Dr. Everett's unwavering support for Chairs of Senate, Senate committees, Faculty Councils, and faculty and staff across all corners of the University.

Adding her thanks and appreciation, President Lenton highlighted that Dr. Everett is the embodiment of a great governance professional, which is manifested through his ability to bring together diverse points of view, his respect for collegial governance and his thoughtful advice. In recognition of Dr. Everett's service, President Lenton announced that the Senate Chamber will be renamed the Dr. Robert Everett Senate Chamber, thereby embodying his presence for years to come.

Reflecting on the 2018 year, President Lenton acknowledged that it had been a challenging one and the holiday break provides a much-needed opportunity for members of the community to rest and recharge before resuming efforts to move York's vision forward in the New Year.

Other comments made by President Lenton included the following:

- regarding the development of a pan-university internationalization strategy, the plans to distribute the call for expressions of interest to participate in the President's Council on Internationalization and Global Engagement in the New Year
- regarding public policy matters, an update on the COU-led sector-wide advocacy with the provincial government, focused on relationship building with government and mitigating possible budget cuts to universities
- the status of the pan-university budget consultations, which have helped to bring about a stronger shared understanding of the budget and have provided the administration with an opportunity to receive input from the community on budget priorities
- the ongoing discussions with the provincial government, Metrolinx, York Regional Transit, and GO Transit regarding their decision to cease public transit bus service to the Keele Campus
- the recent announcement of the appointment of Professor Lorne Sossin, Osgoode, to the Ontario Superior Court of Justice

The Senate of York University

Synopsis

Approvals

Senate approved the recommendations of its Executive Committee to:

- approve the Statement of Policy on Free Speech, satisfying the provincial government's requirement that every publicly-assisted college and university develop and implement a free speech policy by January 1, 2019
- appoint Professor David Mutimer, LA&PS, as Interim Vice-Chair of Senate from January 1 to June 30, 2019, for the duration of Vice-Chair Alison Macpherson's six-month sabbatical

Committee Information Reports

Executive (Professor Alison Macpherson, Vice-Chair)

The Executive Committee's information item was the following:

- with respect to the Committee's monitoring of the academic disruption, an update on the status of course completions and grades submissions from the FW 2017-2018 session

Academic Policy, Planning and Research (Professor Les Jacobs, Chair)

APPRC provided information on these items:

- efforts to revise the Principles and Procedures Governing Non-Degree Studies, centred on clarifying the governance process and enhancing oversight of non-degree programming
- consultations regarding the establishment of a new / "revised" faculty composed of Geography, the Faculty of Environmental Studies and other possible units
- the Committee's feedback on the Statement of Policy on Free Speech which had been shared with the Free Speech Policy Working Group
- update on plans for Markham Centre Campus following the announcement of the cancellation of provincial funding for the Campus
- the status of initiatives in progress under the Provost's purview, including the pan-university budget consultations, enrolment planning with Faculties for FW 2019-2020, the plans to develop an internationalization strategy, the complement renewal strategy, and the decanal searches underway

The Senate of York University

Synopsis

Additional Information about this Meeting

Please refer to the full Senate agenda and supplementary material posted online with the December 13, 2018 meeting for details about these items.

<http://secretariat.info.yorku.ca/senate/meeting-agendas-and-synopses/>

January Meeting of Senate

Senate's next meeting will be held at 3:00 p.m. on Thursday, January 24, 2019.

The Senate of York University

Synopsis

The 653rd Meeting of Senate
held on Thursday, January 24, 2018

Remarks

The Chair welcomed Professor David Mutimer, LA&PS, who was attending his first Senate meeting in his capacity as Interim Vice-Chair of Senate.

In her report, President Rhonda Lenton referenced the provincial government announcements to:

- cut tuition fees by 10% in 2019-20, followed by a tuition freeze in 2020-21
- introduce changes to the Ontario Student Assistance Program (OSAP) that will affect eligibility, the balance between grants and loans, and some aspects of repayment
- introduce a requirement that some student fees be made optional

Vice-President Finance and Administration Carol McAulay summarized the financial impact of the tuition reduction, estimated to be \$46.7M in 2019-2020 and \$60.4M in 2020-2021, representing a 4.5% budget cut. As a result, there will be two additional years of deficit in the operating budget through to 2020-2021, when the plan approved by the Board was to achieve a balanced budget by 2019-2020.

President Lenton then turned to an update on applications for Fall 2019, with Provost and Vice-President Academic Lisa Philipps presenting an overview of application statistics from the Ontario Universities' Application Centre (OUAC). Overall, the total number of direct entry applications to York has decreased by 4.2%, while they have increased across the system by 4.9%, with the biggest drops in first choice and second choice applications. In contrast, international applications to York have increased by 22% (versus a 14.5% increase in the system). Currently, York is eighth in the province in terms of the share of first choice applications, continuing the downward trend in its position over the past ten years, a period during which three major labour disruptions occurred. To restore prospective students' confidence in choosing to attend York, Provost Philipps highlighted the need for the University community to engage in dialogue about the underlying issues producing tensions and consider approaches to working together collectively to move forward.

President Lenton outlined the next steps to begin overcoming the challenges presented by the tuition reduction – including identifying efficiencies and ways to drive new revenue, and the undertaking of a comprehensive financial analysis – highlighting that the impact of the cut will be shared among all units. With respect to the OSAP changes, President Lenton underlined the importance of York remaining steadfast to its commitment to access, a foundational value for the University.

The Senate of York University

Synopsis

Other comments made by President Lenton included the following:

- the importance of making as much progress as possible on the 2015-2020 University Academic Plan (UAP) as planning begins for the next iteration, especially as the UAP ties into the government consultations on the third round of Strategic Mandate Agreements
- explorations to proceed with Markham Centre Campus continue and an update will be provided at an upcoming Senate meeting

Reports

Academic Colleague to the Council of Ontario Universities

In her first report of the year, the Academic Colleague to the Council of Ontario Universities, Professor Andrea Davis, reported that the focus of its most recent meeting was on free speech on university campuses with various guest speakers contributing to the discussion, including two students from the McMaster Students Union. The student guests highlighted to the Colleagues that faculty should be prepared to broaden free speech considerations to the classroom, in addition to protests and events, as speech occurs in classrooms daily. The Colleagues also explored the concept of safe spaces in the classroom and suggested an alternative option of accountable, brave and courageous spaces, where students may express themselves freely and be socially responsible and accountable for engagement with others.

Approvals

Senate approved recommendations of its Academic Standards, Curriculum and Pedagogy Committee to:

- establish a Stream in Cognitive Neuropsychology within the BA and BSc (Honours) programs in Psychology, Glendon
- establish a full-time option for the Master of Public Policy, Administration & Law, School of Public Policy & Administration, LA&PS / Graduate Studies
- approve changes to the degree requirements for the Master of Design, AMPD / Graduate Studies

Committee Information Reports

Executive (Professor David Mutimer, Interim Vice-Chair)

The Executive Committee presented for discussion a draft proposal for a Special Joint Senate-Board Working Group on Jurisdiction Related to the Cancellation / Suspension of Classes during a Labour Disruption. Senators shared views on the proposal at the meeting and are invited to submit feedback via email to Cheryl Underhill (underhil@yorku.ca) by Friday, February 8 for transmittal to Senate Executive.

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The Executive Committee's information items included the following:

- the Committee's monitoring of the academic disruption, including the status of course completions and grades submission from the FW 2017-2018 session
- encouragement for Senators to suggest individuals to serve as external members of the Board of Governors for consideration by the Board Governance and Human Resources Committee; suggestions may be made to the Senators serving on the Board, currently Senators Mutimer and Turlakis, or to Maureen Armstrong, Secretary to Senate and the Board
- its efforts to establish a review cycle for Senate policies
- a reminder that the call for expressions of interest in membership on Senate committees and other positions elected by Senate has been issued, with the upcoming vacancies on Senate committees and the form to submit nominations available on the Senate webpage under the title [Senate Elections](#)

Academic Policy, Planning and Research (Professor Les Jacobs, Chair)

APPRC provided information on these items:

- a reminder of the upcoming [ASCP-APPRC Forum of Ideas](#) on Thursday, February 7, with panels to address the various forms of institutional support and resource planning for program development and a keynote address from Alex Usher
- its tracking of 2015-2020 UAP progress and preparations for discussions with the Deans / Principal over spring and fall 2019 on their respective successes and challenges in advancing UAP goals, as well as progress on their Integrated Resource Plans
- the efforts of the Faculty Blue Facilitating Group, which continues to work closely with Geography, the Faculty of Environmental Studies and other relevant parties to cement the Faculty vision, identify options, address hurdles and tackle resource questions
- the work underway on the VPRI-led initiative to develop and implement an Electronic CV (ECV) tool for York Faculty members

Academic Standards, Curriculum and Pedagogy (Professor K. Michasiw, Chair)

ASCP provided an update on its efforts in collaboration with the Registrar's Office to implement the move from the 9-point to 4-point grading scale, approved in principle by Senate in November 2017. A significant number of policy and operational tasks follow on from this change, including defining the required GPA for progression and graduation

The Senate of York University

Synopsis

and reviewing the current approach to Honours progression through the lens of enhancing student support and success. Broad consultation will be forthcoming.

ASCP also provided information on the following items:

- Minor changes to the degree requirements for the MSc and PhD programs in Biology, Science / Graduate Studies
- Minor change to the admission requirements for the Professional LLM in International Business Law, Osgoode / Graduate Studies

Appeals (Professor Simone Pisana, Chair)

The Appeals Committee presented its annual report on Faculty- and Senate-level petitions and appeals decisions. The Chair noted trends in the petitions and appeals received by Faculties and the Committee, such as the increase in appeals related to academic integrity cases. As the appeals in many academic integrity cases relate to the penalty levied rather than the finding, the Chair encouraged Faculties to provide a clear rationale for their decisions to augment the Appeals Committee's understanding of the files.

Additional Information about this Meeting

Please refer to the full Senate agenda and supplementary material posted online with the January 24, 2019 meeting for details about these items.

<http://secretariat.info.yorku.ca/senate/meeting-agendas-and-synopses/>

February Meeting of Senate

Senate's next meeting will be held at 3:00 p.m. on Thursday, February 28, 2019

Executive Committee Report to Council
Ratification of Nomination

February 5, 2019

Curriculum Committee

Professor Steven Connor: Term: 2019 -2020
Department of Biology

From: Senate Secretaries/Faculty Council Secretaries Info. <SENATE-S@YORKU.CA> **On Behalf Of** Cheryl Underhill

Sent: January 28, 2019 11:59 AM

To: SENATE-S@YORKU.CA

Subject: REMINDER: Call for Expressions of Interest in Membership on Senate Committees and Other Positions Elected by Senate

A gentle reminder that this process is still in progress. Your assistance in spreading the word and encouraging nominations is greatly appreciated.

FACULTY COUNCIL COLLEAGUES: The Executive Committee has issued its annual call for expressions of interest in, and nominations for, Senate-elected positions. For details, please see the dedicated "Elections" page accessible from the Senate Website at:

<http://secretariat.info.yorku.ca/senate/senate-elections/>

Senate nomination guidelines require that Faculty Councils are among those canvassed for suggestions for all positions, even those that are not designated by Faculties. Suggestions would be most welcome from Council committees or individual members of Council.

Expressions of personal interest and nominations of other individuals can be transmitted by means of a form created for this round of elections. Nominators and nominees are asked to review the specific criteria for each of the positions before submitting forms.

Questions about any aspect of the nomination and election process may be addressed to Cheryl Underhill of the University Secretariat (underhil@yorku.ca).

Senate Committee or Position*	Vacancies for terms beginning July 1, 2019
Senator on the Board of Governors	1 full-time faculty member
Academic Standards, Curriculum and Pedagogy	2 full-time faculty members 1 contract faculty member
Senate Appeals Committee	5 full-time faculty members
Awards	5 full-time faculty members
Tenure and Promotions Appeals Committee	3 full-time faculty members
Tenure and Promotions Committee	3 full-time faculty members

*Senate Executive, Academic Policy, Planning and Research, and the Sub-Committee

on Honorary Degrees and Ceremonials are populated by a process leading to nominations by Faculty Councils.

With thanks,

Cheryl Underhill
Assistant Secretary of the University
Office of the University Secretary & General Counsel
York University
1050 Kaneff Tower
416 736-2100 Ext 30335

York University

COUNCIL OF THE FACULTY OF SCIENCE

Report of the Science Curriculum Committee

January 29, 2019

The Faculty of Science Curriculum Committee has reviewed proposals for changes to course information and degree requirements and recommends to the Executive Committee that the following changes be submitted to Council for approval.

Details regarding these proposals (and regarding other minor changes to Calendar/Repository course descriptions and prerequisites which were approved by the Committee but are not reported here) are included in the working papers of January 29, 2019, meeting of the Curriculum Committee, which are on file for your inspection in the Office of the Dean, with all members of the Curriculum Committee or by contacting the Secretary of the Committee at tin@yorku.ca

Agenda

1. Mathematics and Statistics

1.1 Change in calendar description: SC/MATH 2565 3.0 "Introduction to Applied Statistics"

2. Physics & Astronomy

2.1 Change to retire/expire: SC/PHYS 4110 3.0 "Dynamics of Space Vehicles"

2.2 Change in pre-requisite/co-requisite: SC/PHYS 1801 3.0 "Electricity, Magnetism & Optics for Engineers"

2.3 Change to retire/expire: SC/PHYS 1410 6.0 "Physical Science"

2.4 Change to retire/expire: SC/PHYS 1420 6.0 "Physics with Applications for Life Sciences"

2.5 Change to retire/expire: SC/PHYS 1010 6.0 "Physics"

3. Integrated Science

3.1 Change in calendar description and pre-requisite/co-requisite: SC/ISCI 1110 6.0 "Integrated Science (Biology)"

3.2 Change in calendar description and pre-requisite/co-requisite: SC/ISCI 1101 3.0 "Integrated Science I (Biology)"

3.3 Change in calendar description and pre-requisite/co-requisite: SC/ISCI 1102 3.0 "Integrated Science II (Biology)"

3.4 Change in calendar description, degree credit exclusions and pre-requisite/co-requisite: Integrated Science "SC/ISCI 1210 6.0 (Chemistry)"

3.5 Change in calendar description and pre-requisite/co-requisite: SC/ISCI 1201 3.0 "Integrated Science I (Chemist1y)"

3.6 Change in calendar description and pre-requisite/co-requisite: SC/ISCI 1202 3.0 "Integrated Science II (Chemistry)"

3.7 Change in calendar description and course credit exclusions: SC/ISCI 1310 6.0 "Integrated Science (Physics)"

- 3.8 Change in calendar description, degree credit exclusions and pre-requisite/co- requisite:
SC/ISCI 1301 3.0 "Integrated Science (Physics I)"
- 3.9 Change in calendar description, degree credit exclusions and pre-requisite/co- requisite:
SC/ISCI 1302 3.0 "Integrated Science (Physics II)"
- 3.10 Change in calendar description and pre-requisite/co-requisite: "SC/ISCI 1410 6.0
"Integrated Science (Mathematics)"
- 3.11 Change in calendar description and pre-requisite/co-requisite: "SC/ISCI 1401 3.0
"Integrated Science (Mathematics I)"
- 3.12 Change in calendar description and pre-requisite/co-requisite: "SC/ISCI 1402 3.0
"Integrated Science (Mathematics II)"

Changes to Existing Course

Faculty:

Department:

Mathematics and Statistics

Date of Submission:

November 15,
2018

Course Number:

MATH 2565

Effective Session:

FW 2019/2020

Course Title:

Introduction to Applied Statistics

Type of Change:

- | | | | |
|-------------------------------------|---|--------------------------|---|
| <input type="checkbox"/> | in pre-requisite(s)/co-requisite(s) | <input type="checkbox"/> | in cross-listing |
| <input type="checkbox"/> | in course number/level | <input type="checkbox"/> | in degree credit exclusion(s) |
| <input type="checkbox"/> | in credit value | <input type="checkbox"/> | regularize course (from Special Topics) |
| <input type="checkbox"/> | in title (max. 40 characters for short title) | <input type="checkbox"/> | in course format/mode of delivery * |
| <input checked="" type="checkbox"/> | in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> | retire/expire course |
| <input type="checkbox"/> | other (please specify): | <input type="checkbox"/> | |

Change From:

The aim of this course is to give students in various disciplines some fundamental tools in statistical inference. Through a mixture of theory given in lecture hours and practice acquired during lab time, the student will understand when and how to use statistical tools such as the z, t or chi-squared tests, regression analysis, analysis of variance and various other techniques.

To:

The aim of this course is to give students in various disciplines some fundamental tools in statistical inference. Students will understand when and how to use statistical tools such as the z, t or chi-squared tests, regression analysis, analysis of variance and various other techniques. Students will learn how to use the statistical software R for data analysis.

Rationale:

As requested by the ITEC undergraduate program director, the change is to emphasize the use of statistical software R in the course.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

Changes to Existing Course

Faculty:

SCIENCE

Department:

Physics and Astronomy

Date of Submission:

October 23, 2018

Course Number:

PHYS4110 3.0

Effective Session:

Fall 2019

Course Title:

Dynamics of Space Vehicles

Type of Change:

- | | | | |
|-------------------------------------|--|-------------------------------------|---|
| <input type="checkbox"/> | in pre-requisite(s)/co-requisite(s) | <input type="checkbox"/> | in cross-listing |
| <input type="checkbox"/> | in course number/level | <input type="checkbox"/> | in degree credit exclusion(s) |
| <input type="checkbox"/> | in credit value | <input type="checkbox"/> | regularize course (from Special Topics) |
| <input type="checkbox"/> | in title (max. 40 characters for short title) | <input type="checkbox"/> | in course format/mode of delivery * |
| <input type="checkbox"/> | in Calendar description (max. 40 words or 200 characters) | <input checked="" type="checkbox"/> | retire/expire course |
| <input checked="" type="checkbox"/> | other (please specify): PHYS 4110 3.0 is replaced by LE//ESSE 4110 3.0 | <input type="checkbox"/> | |

Change From:

To:

SC/PHYS 4110 3.0 course has been taught for years by faculty members from Earth Science and Space Engineering

PHYS 4110 3.0 is to be replaced by LE/ESSE 4110 3.0 which will be cross listed as PHYS 4110 3.0.

Rationale:

The course has been taught for years by faculty members from Earth Science and Space Engineering who are now part of the Lassonde School. PHYS 4110 3.0 is to be replaced by LE/ESSE 4110 3.0 which will be cross listed as PHYS 4110 3.0.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised "Course Design" and "Method of Instruction" information.

Note: Any section shaded blue must be completed for Engineering related courses in addition to the other sections

**CURRICULUM COMMITTEE TEMPLATE
NEW COURSE PROPOSAL FORM**

Faculty:
Indicate all relevant Faculty(ies) i.e. LAPS/SC/LE

LE

Department:
Indicate department and course prefix (e.g. Languages, GER)

ESSE

Effective Date:

Fall 2019

Course Number:
Special Topics courses Include variance (e.g. HUMA 3000C 6.0, Variance is "C")

LE/ESSE 4110	Var:
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Academic Credit Weight: Indicate both the fee, and MET weight if different from academic weight (e.g. AC=6, FEE=8, MET=6)	AC=3
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Accreditation Unit Breakdown:
Indicate the proposed accreditation unit breakdown as a percentage and unit(s) in the appropriate subject matter areas. Definitions are provided in Appendix A.

	Math	Natural Science	Comp Studies	Eng. Science	Eng. Design
Percentage		33.3%		33.3%	33.3%
Units		12		12	12
If the sum of engineering science and engineering design exceeds 50% of the total, indicate which P.Eng. faculty could be possible instructors for this course:			Jinjun Shan Regina Lee John Moores Hugh Chesser Franz Newland		

Course Title:
The official name of the course as it will appear in the Undergraduate Calendar and on the Repository

Dynamics of Space Vehicles

Short Title:
Appears on any documents where space is limited - e.g. transcripts and lecture schedules - maximum 40 characters

Dynamics of Space Vehicles

Expanded Course Description:

Please provide a detailed course description, including topics/theories and learning objectives, as it will appear in supplemental calendars.

Program Learning Objectives



UDIs and Graduate Attributes



Program Learning Outcomes



Course Learning Objectives



Course Learning Outcomes

Expanded Description including topics and theories:

This course presents a coherent and unified framework for mathematical modeling and analysis of space vehicles. The course can be divided into two main parts: orbit dynamics and attitude dynamics and control. The topics covered by this course include two-body problem, coordinate transformation, orbital elements, perturbation theory, orbital maneuvers, relative motion and rendezvous, interplanetary trajectories, rocket dynamics, and attitude dynamics and control. Spacecraft dynamics and control problems of practical interests are treated from a dynamical systems point of view. This course will focus on a comprehensive treatment of spacecraft dynamics and control problems and their practical solutions.

Course Outline (approximate number of lectures, subject to change)

PART I: Orbital Dynamics

1. Overview and Introduction
2. Particle dynamics/dynamics of point mass (~2 lectures)
3. Two body problem (~3 lectures)
4. Orbital elements (~1 lecture)
5. Coordinate transformations (~1 lecture)
6. Orbital perturbation theory (~1 lecture)
7. Orbital maneuvers (~3 lectures)
8. Relative motion and rendezvous (~1 lecture)
9. Interplanetary trajectories and launch windows (~4 lectures)
10. Rocket vehicle dynamics (~1 lecture)

PART II: Attitude Dynamics and Control

11. Rigid-body dynamics (~2 lectures)
12. Spacecraft attitude dynamics and Control (~2-3 lectures)

<p>Course Learning Outcomes:</p> <p>List the course learning outcomes/indicators that will be achieved by the end of this course, and map these to the appropriate CEAB graduate attributes and UDLs.</p> <p>These course learning outcomes will be assessed and measured in the course for accreditation purposes.</p>	<p><i>Please select those Degree Level Expectations that will be addressed in the course</i></p> <p>Undergraduate Degree Level Expectations</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Depth and breadth of knowledge <input checked="" type="checkbox"/> Knowledge of methodologies <input checked="" type="checkbox"/> Application of knowledge <input checked="" type="checkbox"/> Communication skills <input checked="" type="checkbox"/> Awareness of limits of knowledge <input type="checkbox"/> Autonomy and professional capacity <p>Learning outcomes articulate what the student will achieve by the end of the course. They provide a framework for assessment by stating what you expect the learners to be able to demonstrate after completing the course.</p> <p>A succinct learning outcome specifies the tasks students are expected to be able to perform and the level of competence expected for the tasks.</p> <ol style="list-style-type: none"> 1. Apply Newton's gravitational law to derive two-body equation for orbit motion [GA2; GA3] 2. Apply momentum conservation law to derive the equations of attitude motion [GA2; GA3] 3. Understand fundamental concepts such as orbital elements, orbital perturbations, interplanetary trajectory design procedure, orbital maneuvers [GA1] 4. Perform coordinate transformations [GA2; GA3] 5. Design and analyze satellite orbits with/without computer software [GA4; GA5] 6. Select and design spacecraft attitude controllers [GA2; GA3; GA4; GA5] 	<p><i>Please select those CEAB Graduate Attributes that will be addressed in the course (see appendix B for definitions)</i></p> <p>Graduate Attribute</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Knowledge base for Engineering <input checked="" type="checkbox"/> Problem Analysis <input checked="" type="checkbox"/> Investigation <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Use of Engineering Tools <input type="checkbox"/> Individual and Team Work <input type="checkbox"/> Communication Skills <input type="checkbox"/> Professionalism <input type="checkbox"/> Impact of Engineering on Society and the Environment <input type="checkbox"/> Ethics and Equity <input type="checkbox"/> Economics and Project Management <input type="checkbox"/> Life-Long Learning
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Bibliography:

A READING LIST MUST BE INCLUDED FOR ALL NEW COURSES

The Library has requested that the reading list contain complete bibliographical information, such as full name of author, title, year of publication, etc., and that you distinguish between required and suggested readings. A statement is required from the bibliographer responsible for the discipline to indicate whether resources are adequate to support the course.

Also please list any online resources.

If the course is to be integrated (graduate/ undergraduate), a list of the additional readings to be required of graduate students must be included. If no additional readings are to be required, a rationale should be supplied.

LIBRARY SUPPORT STATEMENT MUST BE INCLUDE

Required Textbook:

H. Curtis, *Orbital Mechanics for Engineering Students*. 3rd edition, Elsevier, 2013

Recommended References

- W. E. Wiesel, *Spaceflight Dynamics*. McGraw-Hill, 2nd edition, 1997
- M. J. Sidi, *Spacecraft Dynamics and Control*. 1997, Cambridge
- Tewari, *Atmospheric and Space Flight Dynamics - Modeling and Simulation with MATLAB and Simulink*. Birkhäuser, 2006, ISBN: 0-8176-4437-7
- D. A. Vallado, *Fundamentals of Astrodynamics and Applications*. 2nd Ed., Microcosm, 2001, ISBN 1-1881883-12-4
- G. A. Gurzadyan, *Space Dynamics*. CRC, 2002, ISBN: 0415282020
- B. Wie, *Space Vehicle Dynamics and Control*. AIAA, 1998

A statement from Engineering Librarian, John Dupuis has been attached to this proposal.

**Faculty and Department/
Division Approval for
Cross-listings:**

If the course is to be cross-listed with another department/division this section needs to be signed by all parties. In some cases there may be more than two signatures required (i.e. Mathematics, Women's Studies). In the majority of cases either the Undergraduate Director or Chair of a unit approves the agreement to cross-list. All relevant signatures must be obtained prior to submission to the Faculty curriculum committee.

Dept: _____ Signature (Authorizing cross-list)	_____	_____
	Department	Date
Dept: _____ Signature (Authorizing cross-list)	_____	_____
	Department	Date
Dept: _____ Signature (Authorizing cross-list)	_____	_____
	Department	Date

Changes to Existing Course

Faculty: Science

Department:

Physics and Astronomy

Date of Submission:

January 21, 2019

Course Number:

PHYS 1801 3.0

Effective Session:

FW 2019

Course Title:

Electricity, Magnetism & Optics for Engineers

Type of Change:

- | | | | |
|-------------------------------------|---|-------------------------------------|---|
| <input checked="" type="checkbox"/> | in pre-requisite(s)/co-requisite(s) | <input type="checkbox"/> | in cross-listing |
| <input type="checkbox"/> | in course number/level | <input checked="" type="checkbox"/> | in degree credit exclusion(s) |
| <input type="checkbox"/> | in credit value | <input type="checkbox"/> | regularize course (from Special Topics) |
| <input type="checkbox"/> | in title (max. 40 characters for short title) | <input type="checkbox"/> | in course format/mode of delivery * |
| <input type="checkbox"/> | in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> | retire/expire course |
| <input type="checkbox"/> | other (please specify): | <input type="checkbox"/> | |

Change From:

Prerequisite: SC/PHYS 1800 3.00.
Corequisites: SC/MATH 1014 3.00 or SC/MATH 1310 3.00 or SC/MATH 1505 6.00. Course Credit Exclusions: SC/PHYS 1010 6.00, SC/PHYS 1410 6.00, SC/PHYS 1420 6.00; SC/ISCI 1310 6.00.

To:

Prerequisite: SC/PHYS 1800 3.00 and **SC/MATH 1013 3.00 or equivalent.**
Corequisites: SC/MATH 1014 3.00 or SC/MATH 1310 3.00 or SC/MATH 1505 6.00. Course Credit Exclusions: SC/PHYS 1010 6.00, SC/PHYS 1410 6.00, SC/PHYS 1420 6.00; SC/ISCI 1310 6.00.; **SC/ISCI 1302 3.00.**

Rationale:

SC/Math 1013 3.00 is a required prerequisite for SC/PHYS 1801 3.00. Course credit exclusion's updated to reflect current course offering in Integrated Science.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

Changes to Existing Course

Faculty: Science

Department:

Date of Submission:

Course Number:

Effective Session:

Course Title:

Type of Change:

- | | |
|--|--|
| <input type="checkbox"/> in pre-requisite(s)/co-requisite(s) | <input type="checkbox"/> in cross-listing |
| <input type="checkbox"/> in course number/level | <input type="checkbox"/> in degree credit exclusion(s) |
| <input type="checkbox"/> in credit value | <input type="checkbox"/> regularize course (from Special Topics) |
| <input type="checkbox"/> in title (max. 40 characters for short title) | <input type="checkbox"/> in course format/mode of delivery * |
| <input type="checkbox"/> in Calendar description (max. 40 words or 200 characters) | <input checked="" type="checkbox"/> retire/expire course |
| <input checked="" type="checkbox"/> other (please specify): This course is replaced by SC/PHYS 1411 3.00 and PHYS 1412 3.00. | <input type="checkbox"/> |

Change From:

To:

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Rationale:

SC/PHYS 1410 6.00 to be retired and replaced by SC/PHYS 1411 3.00 and SC/PHYS 1412 3.00.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

Changes to Existing Course

Faculty: Science

Department:	Physics and Astronomy	Date of Submission:	January 21, 2019
Course Number:	PHYS 1420 6.00	Effective Session:	SU 2019
Course Title:	Physics with Applications to Life Sciences		

Type of Change:

<input type="checkbox"/>	in pre-requisite(s)/co-requisite(s)	<input type="checkbox"/>	in cross-listing
<input type="checkbox"/>	in course number/level	<input type="checkbox"/>	in degree credit exclusion(s)
<input type="checkbox"/>	in credit value	<input type="checkbox"/>	regularize course (from Special Topics)
<input type="checkbox"/>	in title (max. 40 characters for short title)	<input type="checkbox"/>	in course format/mode of delivery *
<input type="checkbox"/>	in Calendar description (max. 40 words or 200 characters)	<input checked="" type="checkbox"/>	retire/expire course
<input checked="" type="checkbox"/>	other (please specify): This course is replaced by SC/PHYS 1420 3.00 and SC/PHYS 1422		

Change From:

To:

Rationale:	SC/PHYS 1420 6.00 to be retired and replaced by SC/PHYS 1420 3.00 and SC/PHYS 1422 3.00.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

Changes to Existing Course

Faculty: Science

Department:

Date of Submission:

Course Number:

Effective Session:

Course Title:

Type of Change:

- | | |
|---|--|
| <input type="checkbox"/> in pre-requisite(s)/co-requisite(s) | <input type="checkbox"/> in cross-listing |
| <input type="checkbox"/> in course number/level | <input type="checkbox"/> in degree credit exclusion(s) |
| <input type="checkbox"/> in credit value | <input type="checkbox"/> regularize course (from Special Topics) |
| <input type="checkbox"/> in title (max. 40 characters for short title) | <input type="checkbox"/> in course format/mode of delivery * |
| <input type="checkbox"/> in Calendar description (max. 40 words or 200 characters) | <input checked="" type="checkbox"/> retire/expire course |
| <input checked="" type="checkbox"/> other (please specify): This course is replaced by SC/PHYS 1011 3.00 and SC/PHYS 1012 3.00 (split in two) | <input type="checkbox"/> |

Change From:

To:

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Rationale:

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

Changes to Existing Course

Faculty:

Department:

BIOLOGY

Date of Submission:

Jan 29, 2019

Course Number:

SC/ISCI 1110 6.00

Effective Session:

FW19

Course Title:

Integrated Science (Biology)

Type of Change:

- | | | | |
|-------------------------------------|---|--------------------------|---|
| <input checked="" type="checkbox"/> | in pre-requisite(s)/co-requisite(s) | <input type="checkbox"/> | in cross-listing |
| <input type="checkbox"/> | in course number/level | <input type="checkbox"/> | in degree credit exclusion(s) |
| <input type="checkbox"/> | in credit value | <input type="checkbox"/> | regularize course (from Special Topics) |
| <input type="checkbox"/> | in title (max. 40 characters for short title) | <input type="checkbox"/> | in course format/mode of delivery * |
| <input checked="" type="checkbox"/> | in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> | retire/expire course |
| <input type="checkbox"/> | other (please specify): | <input type="checkbox"/> | |

Change From:

This course primarily examines foundational topics in biology through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. Registration in this course requires simultaneous registration in SC/ISCI 1210 6.00, SC/ISCI 1310 6.00, and SC/ISCI 1410 6.00. This course is Drop by Permission only.

To:

This course primarily examines foundational topics in biology through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. **Registration in this course requires simultaneous registration in SC/ISCI 1210 6.00, SC/ISCI 1310 6.00, and SC/ISCI 1410 6.00. Registration in this course requires simultaneous registration in SC/ISCI 1210 6.00, or SC/ISCI 1201 3.00 and SC/ISCI 1202 3.00; SC/ISCI 1310 6.00, or SC/ISCI 1301 3.00 and SC/ISCI 1302 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1401 3.00 and SC/ISCI 1402 3.00.** This course is Drop by Permission only.

Corequisites: SC/ISCI 1210 6.00, or SC/ISCI 1201 3.00 and SC/ISCI 1202 3.00; SC/ISCI 1310 6.00, or SC/ISCI 1301 3.00 and SC/ISCI 1302 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1401 3.00 and SC/ISCI 1402 3.00.

Course Credit Exclusion: SC/BIOL 1000 3.00, SC/BIOL 1001 3.00, SC/ISCI 1101 3.00, SC/ISCI 1102 3.00

Rationale:

To reflect the current changes to the Integrated Science course offering.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

Changes to Existing Course

Faculty:

Department:

BIOLOGY

Date of Submission:

JAN 29, 2019

Course Number:

SC/ISCI 1101 3.00

Effective Session:

FW19

Course Title:

INTEGRATED SCIENCE I (BIOLOGY)

Type of Change:

- | | | | |
|-------------------------------------|---|--------------------------|---|
| <input checked="" type="checkbox"/> | in pre-requisite(s)/co-requisite(s) | <input type="checkbox"/> | in cross-listing |
| <input type="checkbox"/> | in course number/level | <input type="checkbox"/> | in degree credit exclusion(s) |
| <input type="checkbox"/> | in credit value | <input type="checkbox"/> | regularize course (from Special Topics) |
| <input type="checkbox"/> | in title (max. 40 characters for short title) | <input type="checkbox"/> | in course format/mode of delivery * |
| <input checked="" type="checkbox"/> | in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> | retire/expire course |
| <input type="checkbox"/> | other (please specify): | <input type="checkbox"/> | |

Change From:

This course primarily examines foundational topics in biology through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. Registration in this course requires simultaneous registration in SC/ISCI 1201 3.00, SC/ISCI 1301 3.00, and SC/ISCI 1401 3.00. This course is Drop by Permission only.

Course Credit Exclusion: SC/BIOL 1000 3.00, SC/ISCI 1110 6.0.

To:

This course primarily examines foundational topics in biology through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics.

Registration in this course requires simultaneous registration in SC/ISCI 1201 3.00, SC/ISCI 1301 3.00, and SC/ISCI 1401 3.00.

Registration in this course requires simultaneous registration in SC/1102 3.00; SC/ISCI 1210 6.00, or SC/ISCI 1201 3.00 and SC/ISCI 1202 3.00; SC/ISCI 1310 6.00, or SC/ISCI 1301 3.00 and SC/ISCI 1302 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1401 3.00 and SC/ISCI 1402 3.00. This course is Drop by Permission only.

Corequisites: SC/ISCI 1210 6.0 or SC/ISCI 1201 3.00; SC/ISCI 1310 6.0 or SC/ISCI 1301 3.00; SC/ISCI 1410 6.00 or SC/ISCI 1401 3.00.

Course Credit Exclusion: SC/BIOL 1000 3.00, SC/ISCI 1110 6.0.

Rationale:

Course description update to reflect the current course offering of ISCI courses.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

Changes to Existing Course

Faculty:

Department:	BIOLOGY	Date of Submission:	JAN 29, 2019
Course Number:	SC/ISCI 1102 3.0	Effective Session:	FW19
Course Title:	Integrated Science II (Biology)		

Type of Change:

<input checked="" type="checkbox"/> in pre-requisite(s)/co-requisite(s)	<input type="checkbox"/> in cross-listing
<input type="checkbox"/> in course number/level	<input type="checkbox"/> in degree credit exclusion(s)
<input type="checkbox"/> in credit value	<input type="checkbox"/> regularize course (from Special Topics)
<input type="checkbox"/> in title (max. 40 characters for short title)	<input type="checkbox"/> in course format/mode of delivery *
<input checked="" type="checkbox"/> in Calendar description (max. 40 words or 200 characters)	<input type="checkbox"/> retire/expire course
<input type="checkbox"/> other (please specify):	<input type="checkbox"/>

Change From:

This course primarily examines foundational topics in biology through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. Registration in this course requires simultaneous registration in SC/ISCI 1202 3.00, SC/ISCI 1302 3.00, and SC/ISCI 1402 3.00. This course is Drop by Permission only. Course Credit Exclusion: SC/BIOL 1001 3.00, SC/ISCI 1110 6.0.

To:

This course primarily examines foundational topics in biology through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. **Registration in this course requires simultaneous registration in SC/ISCI 1202 3.00, SC/ISCI 1302 3.00, and SC/ISCI 1402 3.00.** Registration in this course requires simultaneous registration in SC/ISCI 1101 3.0; SC/ISCI 1210 6.00, or SC/ISCI 1201 3.00 and SC/ISCI 1202 3.00; SC/ISCI 1310 6.00, or SC/ISCI 1301 3.00 and SC/ISCI 1302 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1401 3.00 and SC/ISCI 1402 3.00. This course is Drop by Permission only.

Corequisites: SC/ISCI 1210 6.0, or SC/ISCI 1202 3.00; SC/ISCI 1310 6.00, or SC/ISCI 1302 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1402 3.00.

Course Credit Exclusion: SC/BIOL 1001 3.00, SC/ISCI 1110 6.0.

Rationale:

To reflect the current changes in the course offering for Integrated Science

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

Changes to Existing Course

Faculty:

Department:

CHEMISTRY

Date of Submission:

JAN 29, 2019

Course Number:

SC/ISCI 1210 6.00

Effective Session:

Course Title:

Integrated Science (Chemistry)

Type of Change:

- | | | | |
|-------------------------------------|---|-------------------------------------|---|
| <input checked="" type="checkbox"/> | in pre-requisite(s)/co-requisite(s) | <input type="checkbox"/> | in cross-listing |
| <input type="checkbox"/> | in course number/level | <input checked="" type="checkbox"/> | in degree credit exclusion(s) |
| <input type="checkbox"/> | in credit value | <input type="checkbox"/> | regularize course (from Special Topics) |
| <input type="checkbox"/> | in title (max. 40 characters for short title) | <input type="checkbox"/> | in course format/mode of delivery * |
| <input checked="" type="checkbox"/> | in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> | retire/expire course |
| <input type="checkbox"/> | other (please specify): | <input type="checkbox"/> | |

Change From:

To:

This course primarily examines foundational topics in chemistry through the lens of contemporary issues in science, integrating, disciplinary knowledge, skills and values from biology, chemistry, physics and mathematics and statistics. Registration in this course requires simultaneous registration in SC/ISCI 1110 6.0, SC/ISCI 1310 6.0, and SC/ISCI 1410 6.0. This course is Drop by Permission only.

Course Credit Exclusion: SC/CHEM 1000 3.00, SC/CHEM 1001 3.00 Chemical Dynamics, SC/ISCI 1201 3.0, SC/ISCI 1202 3.0

This course primarily examines foundational topics in chemistry through the lens of contemporary issues in science, integrating, disciplinary knowledge, skills and values from biology, chemistry, physics and mathematics and statistics. **Registration in this course requires simultaneous registration in SC/ISCI 1110 6.0, SC/ISCI 1310 6.0, and SC/ISCI 1410 6.0.** Registration in this course requires simultaneous registration in SC/ISCI 1110 6.00, or SC/ISCI 1101 3.0 and SC/ISCI 1102 3.0; SC/ISCI 1310 6.0, or SC/ISCI 1301 3.00 and SC/ISCI 1302 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1401 3.0 and SC/ISCI 1402 3.0. This course is Drop by Permission only.

Corequisites: SC/ISCI 1110 6.00, or SC/ISCI 1101 3.00 and SC/ISCI 1102 3.00; SC/ISCI 1310 6.0, or SC/ISCI 1301 3.00 and SC/ISCI 1302 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1401 3.00 and SC/ISCI 1402 3.00.
Course Credit Exclusion: SC/CHEM 1000 3.00, SC/CHEM 1001 3.00 **Chemical Dynamics**, SC/ISCI 1201 3.0, SC/ISCI 1202 3.0

Rationale:

To reflect the recent changes in the course offering for Integrated Science.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

Changes to Existing Course

Faculty:
Department:

Chemistry

Date of Submission:

Jan 29, 2019

Course Number:

SC/ISCI 1201 3.0

Effective Session:

FW19

Course Title:

Integrated Science I (Chemistry)

Type of Change:

- | | | | |
|-------------------------------------|---|--------------------------|---|
| <input checked="" type="checkbox"/> | in pre-requisite(s)/co-requisite(s) | <input type="checkbox"/> | in cross-listing |
| <input type="checkbox"/> | in course number/level | <input type="checkbox"/> | in degree credit exclusion(s) |
| <input type="checkbox"/> | in credit value | <input type="checkbox"/> | regularize course (from Special Topics) |
| <input type="checkbox"/> | in title (max. 40 characters for short title) | <input type="checkbox"/> | in course format/mode of delivery * |
| <input checked="" type="checkbox"/> | in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> | retire/expire course |
| <input type="checkbox"/> | other (please specify): | <input type="checkbox"/> | |

Change From:

This course primarily examines foundational topics in chemistry through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. Registration in this course requires simultaneous registration in SC/ISCI 1101 3.00, SC/ISCI 1301 3.00, and SC/ISCI 1401 3.00. This course is Drop by Permission only. Course Credit Exclusion: Course Credit Exclusion: SC/CHEM 1000 3.00, SC/ISCI 1210 6.00.

To:

This course primarily examines foundational topics in chemistry through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics.

Registration in this course requires simultaneous registration in SC/ISCI 1101 3.00, SC/ISCI 1301 3.00, and SC/ISCI 1401 3.00. Registration in this course requires simultaneous registration in SC/ISCI 1110 6.00, or SC/ISCI 1101 3.0 and SC/ISCI 1102 3.00; SC/ISCI 1202 3.00; SC/ISCI 1310 6.00, or SC/ISCI 1301 3.00 and SC/ISCI 1302 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1401 3.00 and SC/ISCI 1402 3.00. This course is Drop by Permission only.

Corequisites: SC/ISCI 1110 6.00, or SC/ISCI 1101 3.00; SC/ISCI 1310 6.0, or SC/ISCI 1301 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1401 3.00.

Course Credit Exclusion: Course Credit Exclusion: SC/CHEM 1000 3.00, SC/ISCI 1210 6.00.

Rationale:

To reflect the current changes to the Integrated Science course offering

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

Changes to Existing Course

Faculty:

Department:

Chemistry

Date of Submission:

Jan 29, 2019

Course Number:

SC/ISCI 1202 3.00

Effective Session:

FW19

Course Title:

Integrated Science II (Chemistry)

Type of Change:

- | | | | |
|-------------------------------------|---|--------------------------|---|
| <input checked="" type="checkbox"/> | in pre-requisite(s)/co-requisite(s) | <input type="checkbox"/> | in cross-listing |
| <input type="checkbox"/> | in course number/level | <input type="checkbox"/> | in degree credit exclusion(s) |
| <input type="checkbox"/> | in credit value | <input type="checkbox"/> | regularize course (from Special Topics) |
| <input type="checkbox"/> | in title (max. 40 characters for short title) | <input type="checkbox"/> | in course format/mode of delivery * |
| <input checked="" type="checkbox"/> | in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> | retire/expire course |
| <input type="checkbox"/> | other (please specify): | <input type="checkbox"/> | |

Change From:

This course primarily examines foundational topics in chemistry through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. Registration in this course requires simultaneous registration in SC/ISCI 1102 3.00, SC/ISCI 1302 3.00, and SC/ISCI 1402 3.00. This course is Drop by Permission only. Course Credit Exclusion: SC/CHEM 1001 3.00, SC/ISCI 1210 6.00.

To:

This course primarily examines foundational topics in chemistry through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. **Registration in this course requires simultaneous registration in SC/ISCI 1102 3.00, SC/ISCI 1302 3.00, and SC/ISCI 1402 3.00.** Registration in this course requires simultaneous registration in SC/ISCI 1110 6.00, or SC/ISCI 1101 3.0 and SC/ISCI 1102 3.00; SC/ISCI 1201 3.00; SC/ISCI 1310 6.00, or SC/ISCI 1301 3.00 and SC/ISCI 1302 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1401 3.00 and SC/ISCI 1402 3.00. This course is Drop by Permission only.

Corequisites: SC/ISCI 1110 6.00, or SC/ISCI 1102 3.00; SC/ISCI 1310 6.0, or SC/ISCI 1302 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1402 3.00.

Course Credit Exclusion: SC/CHEM 1001 3.00, SC/ISCI 1210 6.00.

Rationale:

To reflect the current changes to the Integrated Science course offering.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

Changes to Existing Course

Faculty:

Department:

PHAS

Date of Submission:

January 29, 2019

Course Number:

SC/ISCI 1310 6.00

Effective Session:

FW2019

Course Title:

Integrated Science (Physics)

Type of Change:

- | | | | |
|-------------------------------------|---|-------------------------------------|---|
| <input type="checkbox"/> | in pre-requisite(s)/co-requisite(s) | <input type="checkbox"/> | in cross-listing |
| <input type="checkbox"/> | in course number/level | <input checked="" type="checkbox"/> | in course credit exclusion(s) |
| <input type="checkbox"/> | in credit value | <input type="checkbox"/> | regularize course (from Special Topics) |
| <input type="checkbox"/> | in title (max. 40 characters for short title) | <input type="checkbox"/> | in course format/mode of delivery * |
| <input checked="" type="checkbox"/> | in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> | retire/expire course |
| <input type="checkbox"/> | other (please specify): | <input type="checkbox"/> | |

Change From:

To:

This course primarily examines foundational topics in physics through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. Registration in this course requires simultaneous registration in ISCI 1101 3.00, ISCI 1201 3.00, and ISCI 1401 3.00. This course is Drop by Permission only.

Course Credit Exclusion: SC/ISCI 1310 6.00, SC/PHYS 1010 6.00, SC/PHYS 1410 6.00, SC/PHYS 1420 6.00, SC/PHYS 1800 3.00, SC/PHYS 1801 3.00.

This course primarily examines foundational topics in physics through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. ~~Registration in this course requires simultaneous registration in ISCI 1101 3.00, ISCI 1201 3.00, and ISCI 1401 3.00.~~ Registration in this course requires simultaneous registration in SC/ISCI 1110 6.00, or SC/ISCI 1101 3.00 and SC/ISCI 1102 3.00; SC/ISCI 1210 6.00, or SC/ISCI 1201 3.00 and SC/ISCI 1202 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1401 3.00 and ISCI 1402 3.00. This course is Drop by Permission only.

~~Course Credit Exclusion: SC/ISCI 1310 6.00, SC/PHYS 1010 6.00, SC/PHYS 1410 6.00, SC/PHYS 1420 6.00, SC/PHYS 1800 3.00, SC/PHYS 1801 3.00.~~

Corerequisites: SC/ISCI 1110 6.00, or SC/ISCI 1101 3.00 and SC/ISCI 1102 3.00; SC/ISCI 1210 6.00, or SC/ISCI 1201 3.00 and SC/ISCI 1202 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1401 3.00 and ISCI 1402 3.00.

Course Credit Exclusion: SC/ISCI 1301 3.00, SC/ISCI 1302 3.00, SC/PHYS 1010 6.00, SC/PHYS 1011 3.00, SC/PHYS 1012 3.00, SC/PHYS 1410 6.00, SC/PHYS 1411 3.00, SC/PHYS 1412 3.00, SC/PHYS 1420 6.00, SC/PHYS 1421 3.00, SC/PHYS 1422 3.00, SC/PHYS 1800 3.00, SC/PHYS 1801 3.00.

Rationale:

Change in course credit exclusions to reflect the creation of the new 3 credit Physics courses.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

Changes to Existing Course

Faculty:

Department:	PHAS	Date of Submission:	JAN 29, 2019
Course Number:	SC/ISCI 1301 3.0	Effective Session:	FW19
Course Title:	Integrated Science I (Physics)		

Type of Change:

<input checked="" type="checkbox"/> in pre-requisite(s)/co-requisite(s)	<input type="checkbox"/> in cross-listing
<input type="checkbox"/> in course number/level	<input checked="" type="checkbox"/> in degree credit exclusion(s)
<input type="checkbox"/> in credit value	<input type="checkbox"/> regularize course (from Special Topics)
<input type="checkbox"/> in title (max. 40 characters for short title)	<input type="checkbox"/> in course format/mode of delivery *
<input checked="" type="checkbox"/> in Calendar description (max. 40 words or 200 characters)	<input type="checkbox"/> retire/expire course
<input type="checkbox"/> other (please specify):	<input type="checkbox"/>

Change From:

This course primarily examines foundational topics in physics through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. Registration in this course requires simultaneous registration in ISCI 1101 3.00, ISCI 1201 3.00, and ISCI 1401 3.00. This course is Drop by Permission only.

Course Credit Exclusion: SC/ISCI 1310 6.00, SC/PHYS 1010 6.00, SC/PHYS 1410 6.00, SC/PHYS 1420 6.00, SC/PHYS 1800 3.00, SC/PHYS 1801 3.00.

To:

This course primarily examines foundational topics in physics through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. ~~Registration in this course requires simultaneous registration in ISCI 1101 3.00, ISCI 1201 3.00, and ISCI 1401 3.00.~~ Registration in this course requires simultaneous registration in SC/ISCI 1110 6.00, or SC/ISCI 1101 3.00 and SC/ISCI 1102 3.00; SC/ISCI 1210 6.00, or SC/ISCI 1201 3.00 and SC/ISCI 1202 3.00; SC/ISCI 1302 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1401 3.00 and SC/ISCI 1402 3.00. This course is Drop by Permission only.

Corequisites: SC/ISCI 1110 6.00, or SC/ISCI 1101 3.00; SC/ISCI 1210 6.0, or SC/ISCI 1201 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1401 3.00.

~~Course Credit Exclusion: SC/ISCI 1310 6.00, SC/PHYS 1010 6.00, SC/PHYS 1410 6.00, SC/PHYS 1420 6.00, SC/PHYS 1800 3.00, SC/PHYS 1801 3.00.~~

Course Credit Exclusion: SC/ISCI 1310 6.00, SC/PHYS 1010 6.00, SC/PHYS 1011 3.00, SC/PHYS 1410 6.00, SC/PHYS 1411 3.00, SC/PHYS 1420 6.00, SC/PHYS 1421 3.00, SC/PHYS 1800 3.00.

Rationale:

To reflect the current changes in the course offering for Integrated Science and Physics.

Note: For course proposals involving cross-listings, Integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

Changes to Existing Course

Faculty:
Department:

PHAS

Date of Submission:

Jan 29, 2019

Course Number:

SC/ISCI 1302 3.00

Effective Session:

FW19

Course Title:

Integrated Science II (Physics)

Type of Change:

- | | | | |
|-------------------------------------|---|-------------------------------------|---|
| <input checked="" type="checkbox"/> | In pre-requisite(s)/co-requisite(s) | <input type="checkbox"/> | in cross-listing |
| <input type="checkbox"/> | in course number/level | <input checked="" type="checkbox"/> | in degree credit exclusion(s) |
| <input type="checkbox"/> | in credit value | <input type="checkbox"/> | regularize course (from Special Topics) |
| <input type="checkbox"/> | in title (max. 40 characters for short title) | <input type="checkbox"/> | in course format/mode of delivery * |
| <input checked="" type="checkbox"/> | in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> | retire/expire course |
| <input type="checkbox"/> | other (please specify): | <input type="checkbox"/> | |

Change From:

This course primarily examines foundational topics in physics through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. Registration in this course requires simultaneous registration in SC/ISCI 1102 3.00, SC/ISCI 1202 3.00, and SC/ISCI 1402 3.00. This course is Drop by Permission only. Course Credit Exclusion: SC/ISCI 1310 3.00, SC/PHYS 1010 6.00, SC/PHYS 1410 6.00, SC/PHYS 1420 6.00, SC/PHYS 1800 3.00, SC/PHYS 1801 3.00.

To:

This course primarily examines foundational topics in physics through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. Registration in this course requires simultaneous registration in SC/ISCI 1102 3.00, SC/ISCI 1202 3.00, and SC/ISCI 1402 3.00. Registration in this course requires simultaneous registration in SC/ISCI 1110 6.00, or SC/ISCI 1101 3.00 and SC/ISCI 1102 3.00; SC/ISCI 1210 6.00, or SC/ISCI 1201 3.00 and SC/ISCI 1202 3.00; SC/ISCI 1301 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1401 3.00 and SC/ISCI 1402 3.00. This course is Drop by Permission only.

Corequisites: SC/ISCI 1110 6.00, or SC/ISCI 1102 3.00; SC/ISCI 1210 6.0, or SC/ISCI 1202 3.00; SC/ISCI 1410 6.00, or SC/ISCI 1402 3.00.

Course Credit Exclusion: ~~SC/ISCI 1310 3.00, SC/PHYS 1010 6.00, SC/PHYS 1410 6.00, SC/PHYS 1420 6.00, SC/PHYS 1800 3.00, SC/PHYS 1801 3.00.~~ Course Credit Exclusion: SC/ISCI 1310 6.00, SC/PHYS 1010 6.00, SC/PHYS 1012 3.00, SC/PHYS 1410 6.00, SC/PHYS 1412 3.00, SC/PHYS 1420 6.00, SC/PHYS 1422 3.00, SC/PHYS 1801 3.00.

Rationale:

To reflect the changes to the course offering for Integrated Science and the changes to the first year Physics course offering.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

Changes to Existing Course

Faculty:

Department:

MATH & STATS

Date of Submission:

Jan 29, 2019

Course Number:

SC/ISCI 1410 6.0

Effective Session:

FW19

Course Title:

Integrated Science (Mathematics)

Type of Change:

- | | | | |
|-------------------------------------|---|--------------------------|---|
| <input checked="" type="checkbox"/> | in pre-requisite(s)/co-requisite(s) | <input type="checkbox"/> | in cross-listing |
| <input type="checkbox"/> | in course number/level | <input type="checkbox"/> | in degree credit exclusion(s) |
| <input type="checkbox"/> | in credit value | <input type="checkbox"/> | regularize course (from Special Topics) |
| <input type="checkbox"/> | in title (max. 40 characters for short title) | <input type="checkbox"/> | in course format/mode of delivery * |
| <input checked="" type="checkbox"/> | in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> | retire/expire course |
| <input type="checkbox"/> | other (please specify): | <input type="checkbox"/> | |

Change From:

This course primarily examines foundational topics in mathematics, through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. Registration in this course requires simultaneous registration in SC/ISCI 1110 6.00, SC/ISCI 1210 6.00, and SC/ISCI 1310 6.00. This course is Drop by Permission only. Course Credit Exclusion: SC/ISCI 1401 3.00, SC/ISCI 1402 3.00, SC/MATH 1013 3.00, SC/MATH 1014 3.00, SC/MATH 1505 6.00

To:

This course primarily examines foundational topics in mathematics, through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. ~~Registration in this course requires simultaneous registration in SC/ISCI 1110 6.00, SC/ISCI 1210 6.00, and SC/ISCI 1310 6.00.~~ Registration in this course requires simultaneous registration in SC/ISCI 1110 6.00, or SC/ISCI 1101 3.00 and SC/ISCI 1102 3.00; SC/ISCI 1210 6.00, or SC/ISCI 1201 3.00 and SC/ISCI 1202 3.00; SC/ISCI 1310 6.00, or SC/ISCI 1301 3.00 and SC/ISCI 1302 3.00. This course is Drop by Permission only.

Corequisites: SC/ISCI 1110 6.00, or SC/ISCI 1101 3.00 and SC/ISCI 1102 3.00; SC/ISCI 1210 6.00, or SC/ISCI 1201 3.00 and SC/ISCI 1202 3.00; SC/ISCI 1310 6.00, or SC/ISCI 1301 3.00 and SC/ISCI 1302 3.00.

Course Credit Exclusion: SC/ISCI 1401 3.00, SC/ISCI 1402 3.00, SC/MATH 1013 3.00, SC/MATH 1014 3.00, SC/MATH 1300 3.00, SC/MATH 1310 3.00, SC/MATH 1505 6.00, SC/MATH 1550 6.00.

Rationale:

To reflect the current course offering for Integrated Science

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

Changes to Existing Course

Faculty:

Department:

Math & Stats

Date of Submission:

Jan 29, 2019

Course Number:

SC/ISCI 1401 3.00

Effective Session:

FW19

Course Title:

Integrated Science I (Mathematics)

Type of Change:

- | | | | |
|-------------------------------------|---|--------------------------|---|
| <input checked="" type="checkbox"/> | in pre-requisite(s)/co-requisite(s) | <input type="checkbox"/> | in cross-listing |
| <input type="checkbox"/> | in course number/level | <input type="checkbox"/> | in degree credit exclusion(s) |
| <input type="checkbox"/> | in credit value | <input type="checkbox"/> | regularize course (from Special Topics) |
| <input type="checkbox"/> | in title (max. 40 characters for short title) | <input type="checkbox"/> | in course format/mode of delivery * |
| <input checked="" type="checkbox"/> | in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> | retire/expire course |
| <input type="checkbox"/> | other (please specify): | <input type="checkbox"/> | |

Change From:

This course primarily examines foundational topics in calculus through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. Registration in this course requires simultaneous registration in SC/ISCI 1101 3.00, SC/ISCI 1201 3.00, and SC/ISCI 1301 3.00. This course is Drop by Permission only. Course Credit Exclusion: SC/ISCI 1410 6.00, SC/MATH 1013 3.00, SC/MATH 1300 3.00, SC/MATH 1505 6.00, SC/MATH 1550 6.0.

To:

This course primarily examines foundational topics in calculus through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. ~~Registration in this course requires simultaneous registration in SC/ISCI 1101 3.00, SC/ISCI 1201 3.00, and SC/ISCI 1301 3.00.~~ Registration in this course requires simultaneous registration in SC/ISCI 1110 6.00, or SC/ISCI 1101 3.00 and SC/ISCI 1102 3.00; SC/ISCI 1210 6.00, or SC/ISCI 1201 3.00 and SC/ISCI 1202 3.00; SC/ISCI 1310 6.00, or SC/ISCI 1301 3.00 and SC/ISCI 1302 3.00; SC/ISCI 1402 3.00. This course is Drop by Permission only.

Corequisites: SC/ISCI 1110 6.00, or SC/ISCI 1101 3.00; SC/ISCI 1210 6.00, or SC/ISCI 1201 3.00; SC/ISCI 1310 6.00, or SC/ISCI 1301 3.00.

Course Credit Exclusion: SC/ISCI 1410 6.00, SC/MATH 1013 3.00, SC/MATH 1300 3.00, SC/MATH 1505 6.00, SC/MATH 1550 6.0.

Rationale:

To reflect the current changes to the Integrated Science course offering.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.

Changes to Existing Course

Faculty:

Department:

Math & Stats

Date of Submission:

Jan 29, 2019

Course Number:

SC/ISCI 1402 3.00

Effective Session:

FW19

Course Title:

Integrated Science II (Mathematics)

Type of Change:

- | | | | |
|-------------------------------------|---|--------------------------|---|
| <input checked="" type="checkbox"/> | in pre-requisite(s)/co-requisite(s) | <input type="checkbox"/> | in cross-listing |
| <input type="checkbox"/> | in course number/level | <input type="checkbox"/> | in degree credit exclusion(s) |
| <input type="checkbox"/> | in credit value | <input type="checkbox"/> | regularize course (from Special Topics) |
| <input type="checkbox"/> | in title (max. 40 characters for short title) | <input type="checkbox"/> | in course format/mode of delivery * |
| <input checked="" type="checkbox"/> | in Calendar description (max. 40 words or 200 characters) | <input type="checkbox"/> | retire/expire course |
| <input type="checkbox"/> | other (please specify): | <input type="checkbox"/> | |

Change From:

To:

This course primarily examines foundational topics in calculus through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. Registration in this course requires simultaneous registration in SC/ISCI 1102 3.00, SC/ISCI 1202 3.00, and SC/ISCI 1302 3.00. This course is Drop by Permission only. Course Credit Exclusion: SC/ISCI 1410 6.00, SC/MATH 1014 3.00, SC/MATH 1310 3.00, SC/MATH 1505 6.00, MATH 1550 6.0.

This course primarily examines foundational topics in calculus through the lens of contemporary issues in science, integrating disciplinary knowledge, skills and values from biology, chemistry, physics, and mathematics and statistics. **Registration in this course requires simultaneous registration in SC/ISCI 1102 3.00, SC/ISCI 1202 3.00, and SC/ISCI 1302 3.00. Registration in this course requires simultaneous registration in SC/ISCI 1110 6.00, or SC/ISCI 1101 3.00 and SC/ISCI 1102 3.00; SC/ISCI 1210 6.00, or SC/ISCI 1201 3.00 and SC/ISCI 1202 3.00; SC/ISCI 1401 3.00.** This course is Drop by Permission only.
Corequisites: SC/ISCI 1110 6.00, or SC/ISCI 1102 3.00; SC/ISCI 1210 6.0, or SC/ISCI 1202 3.00; SC/ISCI 1310 6.00, or SC/ISCI 1302 3.00.

Course Credit Exclusion: SC/ISCI 1410 6.00, SC/MATH 1014 3.00, SC/MATH 1310 3.00, SC/MATH 1505 6.00, MATH 1550 6.00.

Rationale:

To reflect the current changes to the Integrated Science course offering.

Note: For course proposals involving cross-listings, integrations and degree credit exclusions, approval from all of the relevant Faculties/department is required.

Note: Since one change (such as a change in year level or credit value) may result in several other changes (e.g., to the course description, evaluation, instruction, bibliography, etc.), please submit as many details as possible. If there are several changes, please feel free to use a New Course Proposal Form in order to ensure that all the required information is included.

* Note: If there is a technology component to the course, a statement is required from ATS indicating whether resources are adequate to support the course. Courses converted from face-to-face to an on-line delivery mode should follow the instructions provided on page 4 of the New Course Proposal Form to provide revised 'Course Design' and 'Method of Instruction' information.