MEMORIAL UNIVERSITY OF NEWFOUNDLAND SENATE

The regular meeting of Senate was held on January 10, 2017 at 4:00 p.m. in the Lecture Theatre in the Physical Education Building, Room 2001.

41. PRESENT

The President, Dr. N. Golfman, Mr. G. Blackwood, Dr. M. Bluechardt, Dr. K. Anderson, Dr. L. Bishop, Dr. H. Carnahan, Ms. S. Cleyle, Dr. M. Courage, Mr. B. Gardiner, Dr. A. Gaudine, Dr. D. Hardy Cox, Professor T. Hennessey, Dr. L. Phillips, Dr. M. Piercey-Normore, Ms. J. Porter, Dr. L. Robinson, Dr. M. Steele, Dr. A. Surprenant, Dr. I. Sutherland, Dr. W. Zerbe, Dr. S. Abhyankar, Ms. L. Alcock, Dr. J. Blundell, Mr. C. Couturier, Dr. I. Emke, Dr. D. Ford, Dr. D. Foster, Dr. T. Fridgen, Dr. G. George, Dr. M. Haghiri, Dr. D. Kelly, Dr. F. Kerton, Dr. J. Lokash, Dr. A. Loucks-Atkinson, Dr. D. McKay, Dr. S. Mulay, Dr. M. Mulligan, Dr. A.C. Onodenalore, Dr. K. Parsons, Ms. H. Pretty, Dr. C. Purchase, Dr. A. Rose, Dr. C. Schiller, Dr. K. Simonsen, Dr. C. Thorpe, Professor D. Walsh, Mr. K. Oluwadairo, Mr. M. Barter, Mr. P. Hillier, Mr. S. Kennedy, Mr. M. O'Keefe.

<u>Chair of the Senate Committee on Undergraduate Studies</u> (Standing Invitation)

Dr. Shannon Sullivan

Welcome Interim Registrar

Ms. Jennifer Porter

<u>Welcome Acting Dean, Faculty of Science</u> Dr. Mary Courage (appointment effective January 1, 2017)

Welcome Newly Elected Senators

Ms. Heather Pretty, Library Dr. Jacqueline Blundell, Science Dr. Ian Fleming, Science Dr. Francesca Kerton, Science

Welcome New MISU Representative

Mr. Christian Samson

The President noted that Dr. Noreen Golfman will give an update on the university budget under the President's Remarks.

42. <u>APOLOGIES FOR ABSENCE</u>

Apologies were received from Dr. C. Reynolds, Dr. S. Carr, Dr. A. Fiech, Dr. C. Vardy.

43. MINUTES

It was moved by Dr. George, seconded by Dr. Anderson, and carried that the Minutes of the regular meeting held on November 8, 2016, and December 20, 2016 be taken as read and confirmed.

44. <u>REPORT OF THE SENATE COMMITTEE ON HONORARY</u> <u>DEGREES AND CEREMONIAL</u>

Senate moved into a closed session for this item of business in accordance with Section IV.E.2. SENATE MEETINGS AND **PROCEDURES** of the Handbook of Senate By-Laws and Procedures which reads:

Matters of a confidential nature, including honorary degrees, shall be discussed in closed session; observers are not permitted to attend closed sessions.

The names of fourteen candidates recommended by the Committee on Honorary Degrees and Ceremonial were presented to the Senate for awarding of doctoral degrees honoris causa. Each candidate was approved by at least a two-thirds majority vote.

CONSENT AGENDA

It was moved by Professor Walsh, seconded by Dr. Surprenant, and carried that the consent agenda, comprising the items listed in 45 to 47 below, be approved as follows:

45. <u>REPORT OF THE SENATE COMMITTEE ON UNDERGRADUATE</u> <u>STUDIES</u>

45.1 Grenfell Campus

Page 228, 2016-2017 Calendar, under the heading <u>13.12.3 Other</u> <u>Environmental Science</u>, add the following new course as follows:

"4369 Environmental Hydrology provides quantitative and qualitative study of hydrological processes and functions under different environments. It explores natural and anthropogenic impacts on quality, quantity and distribution of water in different environments. Thus, the students will develop a balanced view of the hydrological processes and functions, will be able to understand the basic tenets of water cycle

modeling and will be equipped to recognize the role and impact of water management on complex natural phenomena.

PR: Biology 2600, ENVS 2369, one of Chemistry 2210, 2301, 2401, or 2440, and 3 credit hours selected from ENVS 2261, 2360, 2370, 2371, 2430, 3072, or EVST 2000 or the permission of the instructor and the Program Chair. It is recommended that students complete at least 75 credit hours before registering for this course."

Page 210, 2016-2017 Calendar, under the heading <u>7.4.4 Bachelor of</u> <u>Science with Major in Environmental Science</u>, in Table 7, under <u>Required Courses</u>, amend the third row to read as follows:

"Environmental Science Streams

39 credit hours in one of the following streams:

Biology stream:

- Biology 2010, 2122
- Chemistry 1200/1001 sequence or Chemistry 1050/1051 sequence, and one of Chemistry 2210 or Chemistry 2301 or 2440 or 2400/2401 sequence, or Chemistry 1010/1011 sequence and Chemistry 2440
- Environmental Science 3110, 3130 3131, 4132, 4140 (or equivalent field course)
- Two of Environmental Science 4069, 4131, 4133, 4240, <u>4369</u>, 4479,
- one additional laboratory (Science/Statistics/GIS) course beyond the first year level excluding Environmental Science Core courses. A course used to fulfill a stream requirement cannot also be used as a Group C course in the Environmental Science Core.

Chemistry stream:

- Chemistry 1200/1001 sequence or Chemistry 1050/1051 sequence. It is strongly recommended that students complete one of these sequences of Chemistry courses in their first year.
- Chemistry 2210, 2301/2302, Chemistry 2400/2401 or equivalent
- Environmental Science 2261, 3210, 3211, 3260, 3261, 4230
- Two of Environmental Science 4069, 4131, 4240, 4249, <u>4369</u>, 4479, Mathematics 1001 which should be completed in the first year of studies"

Page 212, 2016-2017 Calendar, under the heading <u>7.4.5 Bachelor of</u> <u>Science with Major in General Science</u>, in Table 9, under <u>Required</u> <u>Courses</u>, amend the Earth Sciences entry in the third row to read as follows:

"Earth Systems:

- Earth Sciences 1000, 1001 or 1002
- Any 18 credit hours (six courses) from the following list, at least 6 credit hours of which are beyond the 2000 level: Environmental Studies 2000, 3001, Environmental Science 2360, 2369, 2370, 2371, 2430, 2450, 3072, 3470, 4069, <u>4369</u>, 4479, Earth Sciences 2150, 3811."

45.2 Department of Physics and Physical Oceanography

Page 538, 2016-2017 Calendar, under the heading <u>10.10 Physics and</u> <u>Physical Oceanography</u>, amend the calendar entry as follows:

"2055 Electricity and Magnetism examines Gauss's Law, the electrostatic potential, capacitance, magnetic force and the magnetic field, electromagnetic induction, magnetic materials, ac circuits, superconductivity, the displacement current and Maxwell's equations. General Physics V: Electricity and Magnetism builds upon the concepts of electric and magnetic forces and fields, Gauss's Law, electric potential and electromagnetic induction introduced in PHYS 1051, expanding them to introduce capacitance, their application in DC and AC circuits, electromagnetic waves, wave optics, and geometric optics. CO: Mathematics 2000

LH: 3

PR: Mathematics 2000 and PHYS 1051

2750 Modern Physics eovers special-relativity, quanta-of light, atomic structure and spectral-lines, quantum structure of atoms and-molecules, nuclei and elementary particles. explores the fundamental ideas that are still driving technological developments. Einstein's theory of special relativity, and the microscopic world described by quantum physics are introduced through crucial historical observations. The course covers the dual nature of light and particles, quantum well and quantum tunneling phenomena, which play a key role in modern electronics. Atomic and nuclei structure, and elementary particles are also described.

CO: Mathematics 1001; and Phys 1051

CR: Phys 2056

PR: Mathematics 1001; and Phys 1051 (or PHYS 1021 with a minimum grade of 70%)

3500 Electromagnetic Fields I examines electrostatic Field: field, potential, Poisson's equation, Laplace's equation, capacitance, dielectrics, polarization, electric displacement, boundary conditions. Magnetic Field: electric current and magnetic field, vector potential, Lorentz force and relativity, changing magnetic field, inductance,

magnetic materials, magnetization, Maxwell's equations.

the laws of electrostatic and magnetostatic fields based on vector calculus and a local formulation. Topics covered include Gauss's law, potentials, energy and work, the multipole expansion, Laplace's equation and boundary conditions, linear dielectrics, electric polarization, electric displacement, capacitance, magnetic fields B and H, vector potentials, Lorentz force, magnetization and Maxwell's equations.

PR: PHYS 2055 and 3810 (or Mathematics 3202) CR: Engineering 5812

3600 Optics and Photonics I covers geometrical Optics: thin-lenses, mirrors, optical systems. Two beam and multiple beam interference phenomena. Fraunhofer Diffraction. Introduction to Maxwell's Theory: reflection, transmission, and polarization. Modulation of light waves. Fibre optical light guides: intermodal dispersion, index profiles, loss mechanisms, single mode fibres. Optical communication systems: free space and fibre systems, emitters, detectors, amplifers, wavelengthdivision multiplexing, integrated optics. topics in geometrical and physical optics and applications of associated phenomena, principles, and concepts to photonics. Topics include geometrical optics (thin lenses, mirrors, and optical instruments), physical optics (two-beam and multiple-beam interference, Fraunhofer diffraction, reflection, transmission, and polarization), and applications (fibre-optic light guides, modulation of light waves, and optical communication systems).

PR: Mathematics 2000 and PHYS 2055

3750 Quantum Physics I eovers wave-particle duality of nature. Introduction to Quantum Mechanics, Schrodinger equation. Oneelectron atoms. Quantum statistics. introduces the foundational techniques that are required to understand the physics of atoms and molecules. Beginning with the wave-particle duality of nature, the wave function and the time-independent Schrodinger equation, techniques to calculate wave functions and macroscopic observables in simple onedimensional models are covered. The three-dimensional hydrogen atom, the simplest real-life system that allows for a quantitative guantum description, is then examined in detail.

CO: PHYS 3220 and 3810 or Mathematics 3202 2000. PHYS 3220 is recommended.

PR: PHYS 2750 (or 2056 or <u>CHEM 2302</u>), 3220 and 3810 (or Mathematics 3202 2000). PHYS 3220 is recommended.

3751 Quantum Physics II covers multielectron atoms. Molecules. Solids conductors and semiconductors. Superconductors. Magnetic properties. Nuclear models. Nuclear decay and nuclear reactions.

Properties and interactions of elementary particles. is an introduction to the physics of elementary particles. After a brief overview of special relativity and non-relativistic quantum mechanics, this course covers relativistic quantum mechanics (Klein-Gordon and Dirac equations, antiparticles, spin, transition probability, and Feynman diagrams) and particle physics (leptons and quarks, strong and weak interaction, conservation laws, and standard model of elementary particles). PR: PHYS 3750

4500 Electromagnetic Fields II covers multipole expansions, electrostatic fields-as-boundary value-problems, polarizability-of molecules in dielectric media, Clausius-Mossotti relation, gauges. Electromagnetic Waves: Poynting's theorem, reflection and transmission of electromagnetic-waves, cavity resonators, wave-guides. Electromagnetic-Radiation:-dipoles, antennas, quantum mechanics and electro-magnetic interactions. Selected topics-in electrodynamics and applied electromagnetism. electrodynamics and the applications of Maxwell's equations. Topics covered include electrodynamics (Maxwell's equations and boundary conditions), conservation laws equation, Poynting's theorem, and momentum (continuity conservation), electromagnetic waves (wave properties, reflection and transmission, absorption and dispersion, guided waves), radiation (potential and fields, dipole radiation, and radiation from point charges), and relativistic electrodynamics. Selected topics in electrodynamics and applied electromagnetism may be introduced. PR: PHYS 3500 and 3820 or waiver approved by the instructor CR: Engineering 6813

4600 Optics and Photonics II is a review of basic topics in wave optics. Phase sensitive imaging. Electromagnetic waves in anisotropic media. Scattering of electromagnetic waves. The physics of light sources and applications. Non-linear optics and applications. covers principles of lasers, interactions of laser light and matter, and new development in the fields of optics and photonics. Topics include wave optics, optical resonators, interaction of radiation and atomic systems, principles and techniques of lasers, nonlinear optics and devices, guided-wave optics, and fibre-optic communication. Recent development in the fields, such as photonic crystal optics, ultrafast optics, and nano-optics will be introduced.

CO: PHYS 3751

PR: PHYS 3500, and 3600, and PHYS 3751 or waiver approved by the instructor

4850 Quantum Mechanics examines postulates of quantum mechanics. Operators and operator algebra. Matrix representations. Spin and magnetic fields. Approximation methods: WKB method, time

independent perturbation theory, time dependent perturbation theory, variational methods. Elementary scattering theory. is a mathematicallybased course that covers: the postulates of quantum mechanics; Hermitian operators; x, p and matrix representations of quantum mechanics; the harmonic oscillator; spin and orbital angular momentum and addition of angular momentum; stationary perturbation theory; time dependent perturbation theory.

PR: PHYS 3230, 3750, and 3820 or waiver approved by the instructor.

4851 Advanced Quantum Mechanics eovers general formulation of quantum-mechanics, measurement theory and operators. Hilbert spaces. Advanced topics-selected from:-electron in a strong-magnetic field-and the Aharonov-Bohm effect; advanced scattering theory; systems of identical-particles; Feynman path integral-formulation of quantum mechanics; relativistic- quantum mechanics; second quantization; symmetry and group-theory; density matrix and mixtures. is a continuation of PHYS 4850 that covers: density operators; unitary operators, including symmetry operations and the time-evolution operator; gauge transformations and Berry's phase; quantum mechanical entanglement; systems of identical particles.

PR: PHYS 4850 and <u>4820</u> the former <u>3821-or-waiver approved-by-the</u> instructor

Page 155, 2016-2017 Calendar, under the heading <u>11.5 Academic Term</u> <u>5 Courses</u>, amend the calendar entry as follows:

"5812 Basic Electromagnetics includes a review of relevant vector calculus, including the divergence, gradient and curl operators in Cartesian, cylindrical and spherical coordinates, divergence theorem, Stokes' theorem, and Laplace's and Poisson's equations. Topics in electrostatics include Coulomb's law, potential and energy, conductors, dielectrics, capacitance and electric field boundary conditions. Topics for magnetism include the steady magnetic field, the Biot-Savart law, Ampère's law, magnetic force, potential and magnetic materials and boundary conditions.

OR: tutorial 1 hour per week PR: ENGI 3821, ENGI 4430 CR: Physics 3500"

Page 156, 2016-2017 Calendar, under the heading <u>11.6 Academic Term</u> <u>6 Courses</u>, amend the calendar entry as follows:

"ENGI 6813 Electromagnetic Fields is a continuation of the topics started in Engineering 5812, including a review of electrostatics and magnetostatics, Maxwell's equations, Lorentz force, Poynting's

theorem, plane waves, and applications including two-wire transmission lines. LH: at least three 3-hour sessions per semester OR: tutorial 1 hour per week PR: ENGI 5812 CR: Physics 4500"

45.3 Department of Computer Science

Page 526, 2016-2017 Calendar, under the heading <u>10.4.2 Second Year</u> <u>Courses</u>, amend the calendar entry as follows:

"2718 Development Tools, Work Flows and Concepts covers tools, work flows and concepts used in software development in a concentrated introductory set of topics. The essential work flows (with their underlying concepts) used to edit, build, test, combine with existing software and find existing software are introduced. The tools covered include text editors, programming language translators, file management tools, debuggers, scripting tools, source control tools, and building, testing and deployment tools. The architecture and use of an Integrated Development Environment are discussed. LH: 3

PR: COMP 1510 or COMP-1550 or COMP 1700-or COMP 1710-or COMP 2650 COMP 2500 or COMP 2510 or COMP 2710"

Page 526, 2016-2017 Calendar, under the heading <u>10.4.1 First Year</u> <u>Courses</u>, amend the calendar entry as follows:

"1401 Computing at the Movies will both examine and counter common misconceptions about computing and the computing profession. This will be done by contrasting depictions of various aspects of computing in various movies and documentaries produced over the last 60 years with the reality of these aspects as given in selected readings and course lecture notes."

45.4 Department of Mathematics and Statistics

Page 503, 2016-2017 Calendar, under the heading <u>9.8.1 Regulations</u>, add a new clause 2 and renumber the existing clauses as follows:

"2. Students who have already obtained 6 or more credit hours in Mathematics or Statistics courses numbered 2000 or above should not register for Mathematics 1050 or Mathematics 1051, and cannot receive credit for either course.

Department of Mathematics and Statistics (cont'd)

<u>3.</u> 2. Students with credits in Mathematics or Statistics not listed in this Calendar must consult the Department for equivalency before taking any course listed below.

<u>4.</u> 3. Placement in Mathematics 1000, 1050, 1051 and 1090, and Statistics 1510, shall be determined by the Department of Mathematics and Statistics on the basis of the student's score on the Mathematics Placement Test (MPT), SAT Subject Test in Mathematics Level 1, or other acceptable criteria-based test. From the point of view of degree regulations, Applied Mathematics, Pure Mathematics, and Statistics are considered to be one subject area."

Page 534, 2016-2017 Calendar, under the heading <u>10.8.3 Mathematics</u> <u>Courses</u>, amend the calendar entry as follows:

"1050 Finite Mathematics I covers topics which include sets, logic, permutations, combinations and elementary probability.

CR: the former MATH 1150

LC: 4

PR: a combination of placement test and high school mathematics scores acceptable to the department or MATH 103F

UL: At most 9 credit hours in Mathematics will be given for courses completed from the following list subject to normal credit restrictions: Mathematics 1000, 1031, 1050, 1051, the former 1080, the former

1081, 1090, the former 1150 and 1151. With the exception of those already-admitted at the time of registration in this course to a Bachelor of Education program that requires this course, students who already have obtained credit for 6 or more Mathematics credit hours numbered 2000 or above are not permitted to register for this course nor can they receive credit for it. Students who have already obtained 6 or more credit hours in Mathematics or Statistics courses numbered 2000 or above should not register for this course, and cannot receive credit for it.

1051 Finite Mathematics II covers topics which include elementary matrices, linear programming, elementary number theory, mathematical systems, and geometry.

CR: the former MATH 1151

LC: 4

PR: a combination of placement test and high school mathematics scores acceptable to the department or MATH 103F

UL: At most 9 credit hours in Mathematics will be given for courses completed from the following list subject to normal credit restrictions: Mathematics 1000, 1031, 1050, 1051, the former 1080, the former

1081, 1090, the former 1150 and 1151. With the exception of those already admitted at the time of registration in this course to a Bachelor

Department of Mathematics and Statistics (cont'd)

of Education program that requires this course, students who already have obtained credit for 6 or more Mathematics credit hours numbered 2000 or above are not permitted to register for this course nor can they receive credit for it. Students who have already obtained 6 or more credit hours in Mathematics or Statistics courses numbered 2000 or above should not register for this course, and cannot receive credit for it."

45.5 Department of Physics and Physical Oceanography

Page 538, 2016-2017 Calendar, under the heading <u>10.10 Physics and</u> <u>Physical Oceanography</u>, amend the calendar entry as follows:

"1020 Introductory Physics I is an algebra-based introduction to Newtonian mechanics. <u>Topics covered include motion in one and two</u> <u>dimensions</u>, <u>Newton's laws</u>, <u>momentum</u>, <u>energy and work</u>, <u>and</u> <u>rotational motion</u>. <u>Previous exposure to physics would be an asset but</u> <u>is not essential</u>. This course-may be completed by someone who has no <u>physics-background-provided some extra effort is-made</u>.

CO: Mathematics 1090

CR: PHYS 1050

LH: 3; six laboratory sessions per semester

OR: tutorial or problem sessions may be held on weeks when no laboratory is scheduled

PR: Level III Advanced Mathematics or Mathematics 1090. It is recommended that students have completed at least one high school physics course.

1021 Introductory Physics II is a <u>an non-calculus algebra-based</u> introduction to <u>oscillations</u>, fluids, wave motion, light, opties, electricity and magnetism, <u>and circuits</u>.

CO: Mathematics 1000

LH: 3; normally there will be six laboratory sessions per semester OR: tutorial sessions may be held on weeks when no laboratory is scheduled

PR: PHYS 1020 or 1050 and Mathematics 1090 or 1000

1050 General Physics I: Mechanics is a calculus-based introduction to mechanics. The course will-emphasizes problem solving, beginning with a review of vectors and one-dimensional kinematics. The main part of the course covers motion in two dimensions, forces and Newton's Laws, energy, momentum, rotational motion and torque, and finally oscillations. For more details regarding recommendations for students taking PHYS 1050, see Note 4 under Physics and Physical Oceanography.

CO: Mathematics 1000

CR. PHYS 1020

LH: 3; normally there will be six laboratory sessions per-semester OR:-tutorial-sessions-may be-held-on-weeks-when-no-laboratory is scheduled

PR: Mathematics 1000

1051 General Physics II: Oscillations, Waves, Electromagnetism is a calculus-based introduction to oscillations, wave motion, physical opties and electromagnetism. <u>Topics include: simple harmonic motion;</u> <u>travelling waves, sound waves, and standing waves; electric fields and</u> <u>potentials; magnetic forces and fields; electric current and resistance;</u> <u>and electromagnetic waves.</u>

CO: Mathematics 1001

LH: 3; normally there will be six-laboratory-sessions per-semester

OR: tutorial sessions-may be-held on weeks when-no laboratory is scheduled

PR: PHYS 1050, or 1021, or 1020 (with a minimum grade of 6570%) and Mathematics 1001

2820 Computational Mechanics covers-newtonian-dynamics and celestial mechanics, numerical differentiation and integration, numerical solutions to mechanics problems, data and spectral analysis, Fourier series and normal modes, oscillations and vibrations, linear and non-linear oscillators, nonlinear dynamics and chaos. introduces computational methods in the context of Newtonian mechanics. Numerical differentiation and integration, numerical solutions to differential equations and data analysis are applied to projectile motion, N-body systems, oscillations and problems from astrophysics and geophysics. Implementation of numerical methods using computer programming is emphasized.

CO: Mathematics 2000

LC:5

LH: <u>5-2</u>

PR: Mathematics 2000 and PHYS 1051

3220 Classical Mechanics I covers kinematies and dynamics of a particle. Moving reference systems. Celestial mechanics. Systems of particles. vector operations, coordinate transformations, derivative of vectors, Newton's laws, differential equations, kinematics and dynamics of a particle, linear and quadratic air resistance, terminal velocity, momentum of a time varying mass, center of mass systems, angular momentum, moment of inertia, energy, work-energy theorem, forces as the gradient of potential energy, time dependent potential energy, curvilinear one-dimensional systems, energy of a multiparticle system, calculus of variations, and Lagrangian Dynamics. CO: PHYS 2820, and Mathematics 2260 (or 3260) and 3202 PR: PHYS 2820, and Mathematics 2260 (or 3260) and 3202

3230 Classical Mechanics II covers rigid body motion. Lagrange's equations. Hamilton's equations. Vibrations. Special theory of relativity. noninertial frames of reference, Newton's second law in a rotating frame, centrifugal force, Coriolis force, motion of rigid bodies, center of mass, rotation about a fixed axis, rotation about any axis, inertia tensor, Euler's equations with zero torque, coupled oscillators, chaos theory, bifurcation diagrams, state-space orbits, Poincare sections, Hamiltonian dynamics, ignorable coordinate, phase-space orbits, Liouville's theorem, scattering angle, impact parameter, differential scattering cross section, and Rutherford scattering. PR: PHYS 3220, and 3810 (or Mathematics 3202) and Mathematics 2260 and 3202 or (3260)

CO: Mathematics 3202"

Page 236, 2016-2017 Calendar, under the heading <u>13.23 Physics</u>, amend the calendar entry as follows:

"1020 Introductory Physics I is a non-calculus based introduction to mechanics. is an algebra-based introduction to Newtonian mechanics. Topics covered include motion in one and two dimensions, Newton's laws, momentum, energy and work, and rotational motion. Previous exposure to physics would be an asset but is not essential.

CO: Mathematics 1090

CR: PHYS 1050

LH: 3; six laboratory sessions per semester

OR: tutorial or problem sessions may be held on weeks when no laboratory is scheduled

PR: Level III Advanced Mathematics or Mathematics 1090. It is recommended that students have completed at least one of level II and level-III-high school physics courses, however this course may be completed-by-someone-who has no physics background provided some extra effort is made. high school physics course.

1021 Introductory Physics II is a <u>an non-calculus algebra-</u>based introduction to <u>oscillations</u>, fluids, wave motion, light, opties, electricity and magnetism, <u>and circuits</u>.

CO:-Mathematics 1000

LH: 3: normally there will be six laboratory sessions per semester

OR: tutorial sessions may be held on weeks when no laboratory is scheduled

PR: Mathematics 1000, PHYS-1020-or PHYS 1050 PHYS 1020 or 1050 and Mathematics 1090 or 1000

1050 General Physics I: Mechanics is a calculus-based introduction to mechanics. The course will-emphasizes problem solving, beginning with a review of vectors and one-dimensional kinematics. The main

part of the course covers motion in two dimensions, forces and Newton's Laws, energy, momentum, rotational motion and torque, and finally oscillations. For details regarding recommendations for students taking PHYS 1050, see Note 4 under Physics and Physical Oceanography.

CO: Mathematics 1000 CR. PHYS 1020 LH: 3 PR: Mathematics 1000, which may be taken concurrently

1051 General Physics II: Oscillations, Waves, Electromagnetism is a calculus-based introduction to oscillations, wave motion, physical optics and electromagnetism. <u>Topics include: simple harmonic motion;</u> <u>travelling waves, sound waves, and standing waves; electric fields and</u> <u>potentials; magnetic forces and fields; electric current and resistance;</u> <u>and electromagnetic waves.</u>

CO: Mathematics 1001

LH: 3

PR: PHYS 1050, or PHYS 1021, or PHYS 1020 (with a minimum grade of 6570%) and Mathematics 1001

2820 Computational Mechanics covers newtonian dynamics and eelestial mechanics, numerical differentiation and integration, numerical solutions to mechanics problems, data and spectral analysis, Fourier series and normal modes, oscillations and vibrations, linear and non-linear oscillators, nonlinear dynamics and chaos. introduces computational methods in the context of Newtonian mechanics. Numerical differentiation and integration, numerical solutions to differential equations and data analysis are applied to projectile motion, N-body systems, oscillations and problems from astrophysics and geophysics. Implementation of numerical methods using computer programming is emphasized.

CO: Mathematics 2000 LC: 5 LH: 5-2 PR: Mathematics 2000 and PHYS 1051

3220 Classical Mechanics I covers is kinematics-and dynamics of a particle. Moving reference systems. Celestial-mechanics. Systems-of particles. vector operations, coordinate transformations, derivative of vectors, Newton's laws, differential equations, kinematics and dynamics of a particle, linear and quadratic air resistance, terminal velocity, momentum of a time varying mass, center of mass systems, angular momentum, moment of inertia, energy, work-energy theorem, forces as the gradient of potential energy, time dependent potential energy, curvilinear one-dimensional systems, energy of a multiparticle

system, calculus of variations, and Lagrangian Dynamics.

CO: <u>PHYS 2820</u>, Mathematics 2260 (or-the-former Mathematics 3260) and 3220

PR: PHYS 2820, and Mathematics 2260 (or-the-former Mathematics 3260) and 3202

3230 Classical Mechanics II covers rigid body motion. Lagrange's equations. Hamilton's equations. Vibrations. Special theory of relativity. noninertial frames of reference, Newton's second law in a rotating frame, centrifugal force, Coriolis force, motion of rigid bodies, center of mass, rotation about a fixed axis, rotation about any axis, inertia tensor, Euler's equations with zero torque, coupled oscillators, chaos theory, bifurcation diagrams, state-space orbits, Poincare sections, Hamiltonian dynamics, ignorable coordinate, phase-space orbits, Liouville's theorem, scattering angle, impact parameter, differential scattering cross section, and Rutherford scattering. PR: PHYS 3220, and 3810 (or Mathematics 3202) and Mathematics 2260 and 3202 or the former Mathematics 3260 CO: Mathematics 3202"

Page 505, 2016-2017 Calendar, under the heading <u>9.10 Physics and</u> <u>Physical Oceanography</u>, amend the calendar entry to read as follows:

"Notes:

3. The six course stream consisting of Physics 1020, 1021, 1050, 1051, 2053, 2055, 2750, and 2820 or alternatively the seven course stream of Physics 1020, 1021, 1050, 1051, 2053, 2055, 2750, and 2820 is intended to provide a cohesive overview of Physics for potential Physics majors. Students who receive a grade of greater than 70% in Physics 1020 may proceed directly into Physics 1051 without taking Physics 1021.

4. Physics 1050 is open-to-and recommended for students who have completed Level II Physics, Level III Physics and Level III Advanced Mathematics. Mathematics 1000 must be taken at the same time as, or be completed prior to, taking Physics 1050. Students who have completed Mathematics 1090 1000 and Physics 1050 are required to register for or complete Mathematics 1000 1001 before registering for Physics 1051.

5. Physics 1020 is intended for students who do not qualify for Physics 1050, and while it-may be taken by students who have no background in Physics or who are pursuing degree programs which do not require Physics 1050. it is recommended that students wishing to take Physics 1020 should have completed at least one-of-Level II and Level III

Physics. Students who complete Physics 1020 (with a grade of at least 70%) and Mathematics 1000 are eligible for admission to Physics 1051. Students may receive credit for only one of Physics 1050 and 1020.

6. Students who have successfully completed Advanced Placement courses in both Physics and Mathematics will normally be eligible for direct entry into Physics 1051, which can be taken con-currently with Physics 2053 and 2750 all-of which are offered in the Fall semester. Eligible students are advised to consult the Department.

8. Supplementary examinations will be-allowed in certain Physics courses which have written final examinations. Students should refer to the Faculty of Science-Degree Regulations-for details."

45.6 Marine Institute

Page 169, 2016-2017 Calendar, under the heading <u>5.3 Admission</u> <u>Requirements for Applicants to the Bachelor of Technology Program</u>, amend the calendar entry as follows:

"5.3 Admission Requirements for Applicants to the Bachelor of Technology Program

- An applicant must submit a form for admission/readmission to the University. This application must include all required documentation including proof of the diploma or certificate required for admission in a specific category.
- 2. Categories for admission to the Bachelor of Technology Program

Applicants must meet the regular admission requirements of the University and be eligible for admission in one of the following categories:

- Category A: applicants holding a diploma from the Marine Institute in marine engineering technology, naval architecture technology or marine engineering systems design technology, marine environmental technology,
- Category B: applicants holding a diploma of technology accredited by the Canadian Medical Association (CMA),
- Category C: applicants holding a diploma of technology in engineering/applied science technology accredited by the Canadian Technology Accreditation Board (CTAB), or Technology Accreditation Canada (TAC).
- Category D: applicants holding a diploma of technology comparable to a Marine Institute or College of the North

Marine Institute (cont'd)

Atlantic three-year CTAB accredited diploma in engineering/applied science technology,

- Category E: applicants holding a diploma of technology comparable to a College of the North Atlantic three-year CMA accredited diploma,
- Category F: applicants holding a Certified Engineering Technologist (CET) designation or a Professional Technologist (PTech) designation along with a diploma of technology acceptable to the Admissions Committee,
- Category G: applicants who have Canadian Forces training acceptable to the Admissions Committee.
- 3. Upon acceptance into the program, students will be admitted to one of the two options: the Engineering and Applied Science Technology Option or the Health Sciences Technology Option. Students may be permitted to change their option with the approval of the Marine Institute Committee on Undergraduate Studies.
- 4. Applications to the program will be considered by the appropriate admissions committee(s).
- 5. In accordance with the UNIVERSITY REGULATIONS -Residence Requirements - Second Degree, students completing the Bachelor of Technology program, as a second degree, must complete a minimum-of-an additional 9 eredit hours-beyond a first degree and the work completed as required for admission to this degree. all required courses in their stream of study within the Bachelor of Technology program."

Page 171, 2016-2017 Calendar, under the heading <u>6.2.1 Bachelor of</u> <u>Technology – Engineering and Applied Science Technology Option</u>, amend the calendar entry as follows:

"6.2.1 Bachelor of Technology - Engineering and Applied Science Technology Option

- Students must take 39 credit hours with 24 credit hours from the required courses and 15 credit hours from the electives.
- At least one elective must be chosen from each of the groups A and B.

Sociology 2120

Marine Institute (cont'd)

Required Courses	Group A Electives	Group B Electives
3 credit hours in English at the 1000 level	Business 1101 or 2102	Economics 2010
MSTM 4010	Business 4000	Economics 2020
MSTM 4019	Economics 3360	Economics 3080
MSTM 4020	MSTM 4008	Geography-4410
MSTM 4025 or Statistics 1510 or 2500 or	MSTM 4011	MSTM 4014
equivalent	MSTM 4012	MSTM 4015
MSTM 4040	MSTM 4013	MSTM 4016
MSTM 4060	MSTM 4017	MSTM 4030 <u>or</u>
MSTM-4090	MSTM 4050	Sociology 2120
MSTM-410A/B	MSTM 4070	Philosophy 1100
Statistics-1510-or-2500-or-equivalent	MSTM 4090 or Business 1000	Philosophy 2571
<u>MSTM 4400</u>		Religious Studies 383(

Table 3 Bachelor of Technology - Engineering and Applied Science Technology Option

Page 171, 2016-2017 Calendar, under the heading <u>6.2.2 Bachelor of</u> <u>Technology – Health Science Technology Option</u>, amend the calendar entry as follows:

"6.2.2 Bachelor of Technology - Health Science Technology Option

- Students must take 39 credit hours with 18 credit hours from the required courses and 21 credit hours from the electives.
- At least one elective must be chosen from each of the groups A, B, and C.

Table 4 Bachelor of Technology - Health Science Technology Option

Required Courses	Group A Electives	Group B Electives	Group C Electives
3 credit hours in English at	Business 1101 or 2102	Economics 2010	Biology 2040 or 2041
the 1000 level	Business 4000	Economics 2020	the former Nursing
MSTM 4019	Economics 3360	Economics 3080	3023
MSTM 4025 or	MSTM 4008	Geography 4410	the former Nursing
Statistics 1510 or 2500 or	MSTM 4011	MSTM 4014	4701
equivalent	MSTM 4012	MSTM 4015	Psychology 2010
MSTM 4040	MSTM 4013	MSTM 4016	Psychology 2020
MSTM 4060	MSTM 4017	MSTM 4030 or Sociology 2120	Psychology 2030
MSTM-4090	MSTM 4050	Philosophy 1100	Psychology 2800
MSTM-410A/B	MSTM 4090 or	Philosophy 2551 or 2552 or 2553	Sociology 2110
Statistics-1510-or 2500-or	Business 1000	Philosophy 2571	
equivalent		Religious Studies 3830	
<u>MSTM 4400</u>		Sociology 2120	
			1

Marine Institute (cont'd)

Page 172, 2016-2017 Calendar, under the heading <u>10 Course</u> <u>Descriptions</u>, amend the calendar entry as follows:

"4019 Research Methods will examine the fundamental steps in the process of doing research. It will provide students with the necessary information and tools to conduct technical research and communicate their findings. This course will examine how to define a research project, how to prepare a research proposal, how to select a research methodology, how to collect and analyze data and information, and how to prepare a research project report.

4025 Applied Statistics will enable the student to use descriptive statistics to report data findings, to make statistical inferences using appropriate data analysis, and to use, and interpret the output from, statistical software.

410A and 410B Technical Project Report (same as the former MSTM 4100 and 4200) is a two-semester linked course based on independent study of a problem involving the management of technology. The subject of study will be decided in consultation with the course instructor and must be approved by a committee. The student will identify a research topic in a specialty area, write a concept paper, develop a proposal and write a report. The passing grade for this course is 65%.

UL: Not available to students following the 2017/18 Calendar or later. Course will be discontinued after Spring 2018 semester.

CR: <u>MSTM 4400</u>, the former MSTM 4000, the former MSTM 4100, the former MSTM 4200, the former Technology 4000 OR: must be completed within three consecutive semesters PR: MSTM 4060

4400 Technological Assessment Project will provide students with the opportunity to conduct an assessment and implementation plan of a technical project in their area of interest. Students will utilize the knowledge that they have obtained in the required courses and incorporate this knowledge into a final project paper.

PR: MSTM 4019, 4040, 4060, and 4025 or Statistics 1510 or 2500 or equivalent

CR: MSTM 410 A/B, the former MSTM 4000, the former MSTM 4100, the former MSTM 4200 and the former Technology 4000 Abbreviated Course Title: Tech Assessment Project"

Page 61, 2-16-2017 Calendar, under the heading <u>6.3.3 Second Degree</u>, amend the calendar entry as follows:

Marine Institute (cont'd)

"6.3.3 Second Degree

A student who has already completed a bachelor's degree may undertake a second bachelor's degree, but not in the same major, subject to the condition outlined below:

- 1. Every student for a second bachelor's degree, with the exception of students completing the Bachelor of Technology or Bachelor of Maritime Studies degrees, shall complete at least 30 credit hours at this University beyond those required for the first degree. These credit hours must be applicable to the degree sought. Students who have completed a first degree at this University may be permitted to take at another university up to 6 of the 30 credit hours required in this clause.
- 2. Students completing the Bachelor of Technology or Bachelor of Maritime Studies as a second degree must complete <u>all required</u> <u>courses in their stream of study at-least-an-additional-9-credit</u> <u>hours-beyond-their-first degree</u> and the work completed as required for admission to the Bachelor of Technology/Bachelor of Maritime Studies degree. These credit hours must be applicable to the degree sought."

45.7 Grenfell Campus

Page 219, 2016-2017 Calendar, under the heading <u>13.3 Biology</u>, amend the calendar entry as follows:

"1001-1002 Principles of Biology is an introduction to the science of Biology, including a discussion of the unity, diversity and evolution of living organisms.

LH: 3

PR: BIOL 1001 is a prerequisite for BIOL 1002; Science 1807

2010 Biology of Plants is a study of the structure, function and reproductive Biology of plants, with emphasis on the vascular plants, and on their relationship to environment and human activities.

LC: 3

LH: 3

PR: BIOL 1001, BIOL 1002, and Chemistry 1001; Science 1807

2122 Biology of Invertebrates is a study of the invertebrates with emphasis on structure and function, adaptations and life histories. The laboratories will present a broad survey of the major invertebrate groups.

CR: the former BIOL 3122 LH: 3 PR: BIOL 1001 and BIOL 1002; <u>Science 1807</u>

2210 Biology of Vertebrates is a study of the vertebrates, with emphasis on structure and function, adaptations and life histories. CR: the former BIOL 3210 LH: 3 PR: BIOL 1002; <u>Science 1807</u>

2250 Principles of Genetics is an introduction to Mendelian and molecular genetics. Phenotype and genotype, behaviour of alleles in genetic crosses, chromosome theory of inheritance, genetic linkage, molecular Biology of DNA, RNA and protein, molecular basis of mutation, recombinant DNA, applications of genetic biotechnology.

CO: Chemistry 2440 or Chemistry 2400

CR: the former BIOL 3250

LH: 3

PR: Chemistry 2440 or Chemistry 2400, BIOL 1001 and 1002, Chemistry 1010, 1011 or 1050/1051; Science 1807.

2600 Principles of Ecology is a conceptual course introducing the principles of ecology, including theoretical, functional and empirical approaches.

CR: the former BIOL 3600 LH: 3 PR: BIOL 1002; <u>Science 1807</u>

3053 Microbiology for Nurses is a course on the fundamentals of microbiology with an emphasis on medical microbiology. The course will include topics such as: host responses to infections, human diseases caused by microorganisms, and the control and exploitation of microorganisms. Entrance is restricted to Nursing students in the Bachelor of Nursing (Collaborative) program.

LH: 2

PR: Science 1807

UL: cannot be used as one of the required courses for the Minor, Major, or Honours in Biology, nor is it acceptable for any of the joint programs between Biology and other disciplines"

Page 222, 2016-2017 Calendar, under the heading <u>13.5 Chemistry</u>, amend the calendar entry as follows:

"1001 General Chemistry II is rates of reaction, chemical equilibria, thermodynamics, and introduction to organic chemistry.

AR: attendance is required

CR: credit may be obtained for only one of the following pairs of courses:

CHEM 1000 and CHEM 1001; CHEM 1200 and CHEM 1001

LC: 4 including tutorials

LH: 3

PR: CHEM 1200 or equivalent; Science 1807

1200 General Chemistry I is atomic structure and bonding, stoichiometry, reactions in aqueous solutions, gases, energetics of chemical reactions, the periodic table, chemical bonding and molecular geometry, intermolecular forces. This introductory course is intended for students who have a knowledge of high school chemistry. This course is offered at Grenfell Campus only.

AR: attendance is required

CO: credit may be obtained for only one of the following pairs of courses: the former CHEM 1000 and CHEM 1001; CHEM 1200 and CHEM

1001

LC: 4

LH: 3

PR: Science 1807

1810 Elements of Chemistry is matter, scientific measurement, atomic theory, the periodic table, chemical compounds and elementary bonding theory, the mole, chemical reactions, the chemistry of selected elements, gases, solutions, stoichiometry. This course is specifically intended for those who have no background in chemistry. This course is offered at Grenfell Campus only.

AR: attendance is required

CR: the former CHEM 1800

LC: 4

LH: 3

PR: Science 1807

UL: may not be used as one of the Chemistry courses required for a B.Sc. Degree with a Specialization in Environmental Science at Grenfell Campus, nor for a Major or Honours in Chemistry, nor towards fulfilment of the 78 credit hours in science courses required for the B.Sc. degree on the St. John's campus.

2210 Introductory Inorganic Chemistry is structural chemistry of the solid state. Introduction to molecular orbital and crystal field theories. Chemistry of the s, p, and d block elements. AR: attendance is required

LH: 3

PR: minimum 60% in CHEM 1001 (or the former 1031 or CHEM 1051), Mathematics 1000; Science 1807

2301 Thermodynamics and Kinetics builds upon knowledge of physical chemistry from first year. It covers the three laws of thermodynamics for ideal and real systems as well as chemical kinetics. Topics in thermodynamics include the thermodynamics of ideal and real gases, phases, and solutions, the Maxwell relations, equilibria between phases, and in electrolyte solutions. The integrated rate laws for simple and complex mechanisms, and the temperature dependence of reaction rates in terms of kinetic molecular theory are some of the topics discussed in the kinetics section of the course.

AR: attendance is required in the laboratory component of this course. Failure to attend may result in a failing grade or deregistration from the course.

CR: the former CHEM 2300

LH: 3

PR: minimum 60% in CHEM 1051 (or CHEM 1001 or the former 1031), Mathematics 1001 and Physics 1051 or Physics 1021; <u>Science 1807</u>

2302 Quantum Chemistry and Spectroscopy examines the quantum mechanics of simple systems such as the particle in a box, the harmonic oscillator, linear rotor, and hydrogen-like atoms. Topics also include orbital quantum numbers, spin, many electron atoms, an introduction to quantum mechanical methods, the electronic structures of molecules, bonding, and symmetry. Furthermore, electronic, rotational, and vibrational spectroscopy will be discussed as well as modern applications of spectroscopy and lasers. AR: attendance is required in the laboratory component of this course. Failure to attend may result in a failing grade or deregistration from the course.

CO: Mathematics 2000 is recommended

CR: the former CHEM 3301

LH: 3

PR: minimum 60% in CHEM 1051 or CHEM 1001, Mathematics 1001 and Physics 1051 or Physics 1021; <u>Science 1807</u>

2400 Introductory Organic Chemistry I is bonding involving carbon; conformations and sterochemistry; introduction to functional groups and nomenclature; properties, syntheses and reactions of hydrocarbons, alkyl halides and alcohols.

AR: attendance is required

CR: the former CHEM 2420, CHEM 2440, the former CHEM 240A/B

LH: 3

PR: CHEM 1051 or the former 1031; or CHEM 1010 and CHEM 1011 with a grade of at least 80% in each; or CHEM 1011 with a grade of at least 85%; or CHEM 1001 with a grade of at least 65%; <u>Science 1807</u>

2401 Introductory Organic Chemistry II is an introduction to the interpretation of infrared, H and C-13 NMR spectroscopy; properties, syntheses and reactions of ethers, simple aromatic compounds, ketones, aldehydes, amines, carboxylic acids and their derivatives; aldol and related reactions.

AR: attendance is required

CR: the former CHEM 2420, CHEM 2440, the former CHEM 240A/B LH: 3

PR: CHEM 2400; Science 1807

2440 Organic Chemistry for Biologists is an introduction to the principles of organic chemistry with an emphasis on material relevant to biological molecules. The laboratory will introduce techniques and illustrate concepts covered in the course.

AR: attendance is required

CR: CHEM 2400

LH: 3

PR: CHEM 1011 (or CHEM 1001 or CHEM 1051); <u>Science 1807</u> UL: is designed primarily for Biology Majors and may not be used for credit by Chemistry or Biochemistry Majors and may not serve as a prerequisite for any other Chemistry course."

Page 224, 2016-2017 Calendar, under the heading <u>13.8 Earth Sciences</u>, amend the calendar entry as follows:

"1000 Earth Systems is a survey of the structure, function and interrelations of Earth's lithosphere, hydrosphere, atmosphere and biosphere. Topics include an exploration of the physical and chemical properties of planetary materials, forces driving and sustaining Earth systems, and biological modifiers (including humankind) on the Earth today.

LH: 3

PR: Science 1807

1002 Concepts and Methods in Earth Sciences is an introduction to a broad range of concepts concerning the development of the geological record and the Earth; practical methods for collection of field based data; topics in map interpretation and geometric analysis, stratigraphy, paleontology, structure and petrology. The course is presented with an

emphasis on the development of practical skills needed to pursue a career in Earth Sciences. LH: 3

PR: EASC 1000; Science 1807

3811 Paleontology is an outline of the major changes in life forms from Archaean times through the Phanerozoic to the present day, including details of invertebrate and vertebrate faunas and major floral groups; mechanisms and effects of mega-, and microevolution in the fossil record; Biology and classification of organisms and summaries of their geological significance in biostratigraphy, paleoecology and rock-building; relationships between major cycles of evolution and extinction to global processes. This course has a laboratory component. CR: Biology 3811, the former EASC 3801, the former Biology 3800 LH: 3

PR: either Biology 2120 (or Biology 1001 and Biology 1002) and EASC 1002; or Biology 2122 and Biology 2210; <u>Science 1807</u>"

Page 226, 2016-2017 Calendar, under the heading <u>13.12.1</u> Environmental Biology, amend the calendar entry as follows:

"3110 Taxonomy of Flowering Plants is a study of the biodiversity of flowering vascular plants (Magnoliophyta) through the practical identification of Newfoundland families, genera, and species. Related taxonomic and biogeographical principles will be stressed.

CR: Biology 3041

LH: 3 laboratory periods of integrated practice and theory

OR: Students must submit a collection of flowering plants identified to the species level. Detailed instructions should be obtained from the instructor in the spring/summer prior to the commencement of this course.

PR: Biology 2010 or equivalent; Science 1807

3130 Freshwater Ecology is the study of freshwater ecosystems (lakes, rivers, streams, peatlands). Included are abiotic components, community structures, energy flow, biogeochemical cycles, and the evolution of natural and altered aquatic ecosystems. Emphasis will be placed on field and laboratory studies of the ecology of freshwater organisms and systems in western Newfoundland.

LH: 3

PR: Biology 2010, Biology 2122, Biology 2600; one of Chemistry 1001 or Chemistry 1011; Science 1807

3131 Impacted Terrestrial Ecosystems is an examination of ecological and evolutionary responses by organisms in terrestrial

ecosystems to human-derived and natural perturbations. Advanced conceptual, empirical and experimental approaches will be used, with an emphasis on sampling local habitats.

CR: Biology 3610

LH: 3

PR: Biology 2600; and two of Biology 2010, Biology 2122, Biology 2210 or the permission of the instructor and Program Chair; <u>Science</u> 1807

4132 Analytical Ecology states that the assessment of environmental impacts on higher-level ecological systems requires a critical analysis of scientific reports, along with the ability to evaluate ecological terminology and concepts and associated statistical methodologies. Students in this course will critically read and analyse recent scientific literature in Environmental Biology, with selected topics at the community, ecosystem and landscape level, and examine related univariate and multivariate statistical procedures

LH: three-hour laboratory/discussion group

PR: Biology 2600, <u>Science 1807</u>, Statistics 2550 (or equivalent), with 6 credit hours from clause c. of the Environmental Science Core. It is recommended that students complete at least 80 credit hours before registering for this course.

4133 Conservation Biology will bring together the principles of ecology and conservation Biology at an advanced level. Current issues and techniques will be discussed with an aim towards understanding how populations of native flora and fauna can be managed for long-term conservation in the face of habitat degradation and loss.

CR: Biology 4650 and Geography 4650

LH: three-hour laboratory/discussion group

PR: two of ENVS 3110, 3130, and 3131; or permission of instructor; Science 1807

4140 Environmental Science Field Course is a course providing practical experience in the observation, collection, identification and quantification of organisms and the various environmental parameters which affect them in pristine and disturbed habitats. Combinations of freshwater, marine and terrestrial habitats will be studied using techniques from various scientific disciplines. The actual combination of habitats, organisms, and techniques will vary from year to year.

PR: Biology 2600, Statistics 2550, with a minimum of 80 credit hours from Environmental Science Program (or equivalent) and permission of the instructor and Program Chair; <u>Science 1807</u>"

Page 228, 2016-2017 Calendar, under the heading <u>13.12.2</u> Environmental Chemistry, amend the calendar entry as follows:

"3210 Environmental Analytical Chemistry I is treatment of data, error analysis, wet methods of analysis of laboratory and field samples. Volumetric methods for acidity, alkalinity and hardness; chemical and biological oxygen demand (COD and BOD). Gravimetric methods for sulphate and phosphates. Theory and application of specific ion electrodes analysis of metal ions, dissolved gases and halide ions. Turbidimetric and nephelometric measures of water quality. Spectrophotometric analysis of trace metal ions.

LC: not more than seven hours per week

LH: not more than seven hours per week

PR: the former Chemistry 2300 (or 2301) and Chemistry 2210; Science 1807

3211 Environmental Analytical Chemistry II is theory and application of spectroscopic methods of analysis (including error analysis) of environmentally important compounds. Spectrophotometric, FTIR, light scattering, chromatographic (GC, GC/MS, HPLC), fluorescence, phosphorescence, atomic absorption and electroanalytical methods will be studied. Synthetic laboratory samples and field samples will be examined by these techniques.

LC: not more than seven hours per week

LH: not more than seven hours per week

PR: ENVS 3210 (or equivalent); Science 1807

4230 Aquatic Chemistry I is thermodynamics and kinetics of model systems. Acids and bases (including buffer intensity and neutralizing capacity), dissolved gases, precipitation and dissolution. Metal ions in aqueous solution. Redox control in natural waters. Pourbaix diagrams. Regulation of chemical composition of natural waters, pollution and water quality.

LC: not more than seven hours per week

LH: not more than seven hours per week

PR: ENVS 3211 and one of Chemistry 2400 or Chemistry 2440 or permission of the instructor and Program Chair; <u>Science 1807</u>"

Page 228, 2016-2017 Calendar, under the heading <u>13.12.3 Other</u> <u>Environmental Science</u>, amend the calendar entry as follows:

"4069 Fundamentals of Soil Systems is the physics, chemistry and Biology of soil, including inorganic soil components, chemistry of organic soil matter, soil equilibria, sorption phenomena on soils, ion

exchange processes, kinetics of soil processes, redox chemistry of soils, soil acidity, saline and sodic soils, organic pollutants, trace and toxic elements in soils, soil organisms, organic matter cycling, nutrient cycling and fertility, soil conservation and sustainable agriculture.

LC: not more than six hours per week

LH: not more than six hours per week. The laboratory will cover a number of key physical, chemical and biological properties and procedures used in soil analyses. One or more field trips will be scheduled during laboratory sessions

PR: Biology 2600, Earth Sciences 1000, one of Chemistry 2210, the former Chemistry 2300, Chemistry 2301, Chemistry 2401, or Chemistry 2440, and 6 credit hours selected from ENVS 2261, 2360, 2370, 2371, 2430, 2450, 3072, 3470, or Environmental Studies 2000. It is recommended that students complete at least 80 credit hours before registering for this course; <u>Science 1807</u>

4950 Research Project in Environmental Science is a course, with the guidance of a faculty member, where students will conduct a scientific study based upon original research or a critical review of extant data in an appropriate area. Students are required to submit a report and give a presentation. This project fulfils the Core requirement for a fourth-year individual project in the area of specialization. PR: permission of Program Chair; <u>Science 1807</u>

4951 Honours Project in Environmental Science I is a course, under the guidance of a designated supervisor (or supervisors), where the student will prepare a thesis proposal including a comprehensive literature review of the subject of their Honours thesis. Students will present the results of their work in both written and oral form.

PR: restricted to Environmental Science students who have been accepted into the Honours option; <u>Science 1807</u>

4959 Honours Research Project in Environmental Science II is a continuation of ENVS 4951 specifically for Honours students. Under the supervision of faculty member(s), students will carry out an original research project in environmental science. Students will present both a thesis and seminar on their research.

PR: ENVS 4951 and admission to the honours program; Science 1807"

Page 236, 2016-2017 Calendar, under the heading <u>13.23 Physics</u>, amend the calendar entry as follows:

"1021 Introductory Physics II is a non-calculus based introduction to fluids, wave motion, light, optics, electricity and magnetism. CO: Mathematics 1000

LH: 3

PR: Mathematics 1000, PHYS 1020 or PHYS 1050; Science 1807

1051 General Physics II: Oscillations, Waves, Electromagnetism is a calculus based introduction to oscillations, wave motion, physical optics and electromagnetism.

CO: Mathematics 1001

LH: 3

PR: PHYS 1050 or PHYS 1021 or PHYS 1020 (with a minimum grade of 65%) and Mathematics 1001; <u>Science 1807</u>

2053 Fluids and Thermal Physics examines elasticity, fluid mechanics, thermodynamics, kinetic theory and statistical mechanics. CO: Mathematics 1001 and PHYS 1051 LH: 3 PR: Mathematics 1001 and PHYS 1051; Science 1807

2056 General Physics VI: Modern Physics is special relativity, quanta of light, atomic structure and spectral lines, quantum structure of atoms and molecules, nuclei and elementary particles.

CO: Mathematics 1001 and PHYS 1051

CR: PHYS 2750

LH: 3

PR: Mathematics 1001, PHYS 1050 (or PHYS 1020 and PHYS 1021), and PHYS 1051; Science 1807

2553 Introduction to Analog and Digital Electronics covers the basics of the analog and digital electronics; direct current circuits, capacitors and inductors, alternating currents, test equipment and measurement, transducers, diodes and transistors, introduction to operational amplifiers, digital basics, digital circuitry and digital analog I/O. This course is a combined lecture/laboratory course with two three-hour sessions scheduled per week.

PR: Mathematics 1000 or equivalent, PHYS 1021 or 1051; Science 1807

3060 Electricity and Magnetism is point charges; Coulomb's law; electrostatic field and potential; Gauss' law; conductors; magnetostatics; Ampere's law; Biot-Savart law; dielectric and magnetic materials; electrostatic and magnetostatic energy; Lorentz force; time varying fields; Faraday's law; Lenz's law; Maxwell's equations.

CO: Mathematics 2260 (or the former Mathematics 3260) LH: 3

PR: PHYS 1051 and Mathematics 2260 (or the former Mathematics 3260); Science 1807

4880 Physics Laboratory introduces the student to advanced laboratory work in several areas of physics.

PR: Physics students who have completed 60 credit hours or more; Science 1807"

46. <u>REPORT OF THE ACADEMIC COUNCIL OF THE SCHOOL OF</u> <u>GRADUATE STUDIES</u>

46.1 Medicine

Page 648, 2016-2017 Calendar, under the heading <u>23.2.1 Population</u> and Public Health, amend the calendar entry to read as follows:

"23.2.1 Population and Public Health

- 1. Minimum requirements for the M.P.H. degree in Population and Public Health will include the successful completion of 42 credit hours as follows:
 - a. Eight core courses: Biostatistics I (MED 6200), Epidemiology I (MED 6270), Policy and Decision Making (MED 6288), Disease and Injury Prevention (MED 6721), Environmental Health (MED 6722), Health Promotion (MED 6723), Communicable Disease Prevention and Control (MED 6724), and Public Health Leadership and Management (MED 6725), and MED 6726 Program Development in Public Health.
 - b. Six additional credit hours in elective courses chosen from the **Courses** listing below, or other courses as approved by the M.P.H. program coordinator.
 - c. The Public Health Seminar Series courses (MED 6700 6701).
 - d. Either, the Public Health Practicum (MED 6710) or the Public Health Capstone Research Project (MED 6711) as determined by the Graduate Program Committee depending on the professional background and experience of the candidate.

The Public Health Practicum is a full-time practice experience conducted in a work setting and following the guidelines set forth by the Public Health Agency of Canada (PHAC) at www.phac-aspc.gc.ca/indexeng.php.

All course work must be completed prior to the initiation of either the Public Health Practicum or the Public Health Capstone Research Project. Medicine (cont'd)

Table 1 Master of Public Health Recommended Course Sequence for Full-Time Students in the Population and Public Health Specialization

Semester	er Courses					
	MED 6270 Epidemiology 1					
	 MED 6288 Policy and Decision Making 					
	 MED 6700 Public Health Seminar Series 1 					
Fall	 MED-6724 Communicable Disease Prevention-and Control 					
	MED 6725 Public Health Leadership and Management					
	 MED 6726 Program Development in Public Health 					
	MED Elective Course					
	MED 6200 Biostatistics I					
	 MED 6701 Public Health Seminar Series II 					
Winton	 MED 6721 Disease and Injury Prevention 					
whiter	 MED 6722 Environmental Health 					
	 MED 6723 Health Promotion 					
	MED Elective Course					
Samina	MED 6710 Public Health Practicum, or					
spring	MED 6711 Public Health Capstone Project					

46.2 Education

Page 689, 2016-2017 Calendar, under the heading <u>32.9 Education</u>, amend the calendar entry to read as follows:

"32.9 Education

www.mun.ca/educ

http://www.mun.ca/regoff/calendar/sectionNo=GRAD-0376"

Page 689, 2016-2017 Calendar, under the heading <u>32.9.3 Program of</u> <u>Study</u>, amend the calendar entry to read as follows:

"32.9.3 Program of Study

1. Courses

Students are required to successfully complete two four courses on the doctoral program.

a. Education 701A/B - Doctoral Seminar in Education: Area of Specialization

Education 702A/B - Advanced Educational Research Students will normally register for the 'A' portion of the above-noted courses in the relevant Fall semester of their program of study and the corresponding 'B' portion of the course in the following Winter semester. A grade of NC (No Grade Expected) will be assigned to the 'A' portion of each of these courses.

Education (cont'd)

- Based-on a consideration of educational-background and research interest, students may be-required-to-complete (or-have completed at the masters-level)-as-many as two (2) additional courses in research related to their program focus and specialty.
- b. <u>Students will also be required to complete two (2)</u> available graduate courses related to their program focus and specialty, based on the advice of the student's supervisory committee.
- c. Normally, no more than four courses may be undertaken on a candidate's program.
- d. Education 7003-30 Special Topics (offered as required)"

46.3 <u>Nursing</u>

Page 642, 2016-2017 Calendar, under the heading <u>20.4.2 Nurse</u> <u>Practitioner Option</u>, amend the calendar entry by adding a new clause 4 as follows:

"<u>4. Students must complete the required clinical hours per course in</u> order to progress in the program and they must complete the required clinical hours for each life stage (for example, children, pregnancy, older adult) by the end of 690X in order to complete the Nurse Practitioner Option."

Page 642, 2016-2017 Calendar, under the heading <u>20.4.3 Post Master's</u> <u>Nurse Practitioner Graduate Diploma</u>, amend the calendar entry adding a new clause 5 as follows:

"5. Students must complete the required clinical hours per course in order to progress in the program and they must complete the required clinical hours for each life stage (for example, children, pregnancy, older adult) by the end of 690X in order to complete the Nurse Practitioner Option."

Page 642, 2016-2017 Calendar, under the heading <u>20.6 Courses</u>, amend the calendar entry to read as follows:

"20.6 Courses

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

Nursing (cont'd)

- 6010 Research in Nursing: Quantitative Methods (3 credit hours) (prerequisite-or-co-requisite: 6012)
- 6011 Philosophical and Theoretical Foundations of Nursing
- 6012 Statistics for Advanced Nursing Practice
- 6020 Program Development in Nursing
- 6031 Education in Nursing
- 6100 Research in Nursing: Qualitative Methods (pre or co-requisite: 6011)
- 6221 Population-Based Nursing (equivalent to 6220 and 6230)
- 6240 Nursing Individuals and Families Through Life Transitions (equivalent to 6200 and 6210)
- 6250 Foundations for Advanced Nursing Practice (This course is a prerequisite for all other courses for students in the practicum option though may be taken as a co-requisite in the first term of the program)
- 6251 Writing Skills for Nurse Practitioners (1 credit hour) (This course is a prerequisite for all other courses for students in the MN-NP option though may be taken as a co-requisite in the first term of the program)
- 6310-6350 Special Topics in Nursing
- 6501-6510 Individual Readings and Research in Special Areas
- 6660 MN Practicum 1 (prerequisites: All required courses including 6020 or 6031, and 6240/6721-6221 or 6200/6210 or 6220/6230)
- 6661 MN Practicum 2 (prerequisite: 6660 MN Practicum 1)
- 6703 Advanced Health Assessment and Clinical Practicum 1 (4 credit hours)
- 6704 Applied Pathophysiology and Clinical Practicum 2 (4 credit hours) (prerequisite: 6703)
- 6705 Pharmacotherapy and Therapeutics (prerequisite: 6704)
- 6706 Nurse Practitioner Roles and Practice Issues
- 6800 Adult Advanced Clinical Decision Making 3 (4 credit hours), (or the former 6800 Adult Advanced Clinical Decision Making (4 credit hours)) (prerequisite: 6705)
- 6802 Family/All Ages Clinical Decision Making 3 (4 credit hours), (or the former 6802 Family/All Ages Clinical Decision Making (4 credit hours)) One of: 6803 to 6809 Nursing Specialty Option Courses (4 credit hours) (prerequisite: 6705)
- 690X Advanced Clinical Practicum 4 (The integrated practice component will normally consist of a minimum of 400 hours of preceptored specialty clinical practice and biweekly seminars) (12 credit hours), (or the former 690X Advanced Clinical Practicum 2 (The integrated practice component will normally consist of a minimum of 400 hours of preceptored specialty-clinical practice and biweekly seminars) (12 credit hours) (prerequisite: 6800 or 6802)"

46.4 Master of Employment Relations

Page 623, 2016-2017 Calendar, under the heading <u>12.5 Program of</u> <u>Study</u>, amend the calendar entry to read as follows:

"12.5. Program of Study

1. The M.E.R. program consists of 36 credit hours of course work as specified in <u>Table 1</u>. These include $3\underline{3}\theta$ credit hours of compulsory courses and $\underline{36}$ credit hours of an elective course. The compulsory courses are comprised of 21 credit hours of core courses specified in **Table 2** and 9 credit hours for a research seminar.

2. The compulsory core courses introduce students to the three main areas of study in the program: labour-management relations; human resources management; and labour market and social policy analysis.

3. <u>The e</u>Elective allows students to specialize in one or more of the three main areas of study. The <u>e</u>Electives must be chosen from the list of approved electives specified in Table 3. Other courses may be approved and added to <u>Table 3</u> from time to time by the GCER.

4. Candidates are responsible for fulfilling all prerequisites and may require special permission from the Department offering an elective to enrol in the course.

5. The Research Seminar in Employment Relations provides students with both quantitative and qualitative research skills and requires the identification of a research problem, the development and execution of a methodology appropriate to addressing the problem, analysis of results, and completion of final report. The Research Seminar involves 3 credit hours of course work in each of the Fall, Winter, and Spring semesters.

6. The prerequisites for EMRE 6030 and EMRE 6040 are EMRE 6010 and EMRE 6020. In addition, students will normally complete six M.E.R. courses before registering for EMRE 6030 or EMRE 6040. There are no prerequisites for EMRE 6010 and EMRE 6020 but students are advised to take these courses late in their programs, just before taking EMRE 6030 or EMRE 6040. For the core courses, the prerequisite for BUS1 9329 is BUS1 8210. For the remaining core courses, there are no prerequisites. For the elective courses, Departmental regulations that specify particular courses as prerequisites will apply but the Departmental requirement to have completed a number of courses will not apply.

7. A waiver of a core course may be granted by the Dean of Graduate Studies on the recommendation of the Director if the candidate can demonstrate that the material in the course has been substantially covered by other courses taken at this or another recognized university. In such cases, the course must be replaced by another course offered by Memorial University of Newfoundland in consultation with the candidate, and approved by the Director. The maximum number of core courses that can be waived is 3 and all

Master of Employment Relations (cont'd)

replacement courses must be taken during the candidate's period of enrollment in the program.

8. Each student's program of study must be approved by the Director. The Director reserves the right to restrict candidates from taking particular courses if it is deemed that those courses do not add sufficient value beyond courses that the candidate has completed at the undergraduate level."

Page 624, 2016-2017 Calendar, under the heading <u>12.7 Courses</u>, amend the calendar entry as follows:

"12.7 Courses

The schedule of courses for the M.E.R. program is normally as follows:

_	Table 1 Master of Employment Relations Schedule of Courses					
	Term I (Fall)		Term II (Winter)			
•	Four core courses from Table 2		Three Four core courses			
•	Employment Relations 6010		from Table 2			
	Research Seminar in Employment	•	One elective from Table 3			
	Relations 1: Quantitative Methods		Employment Relations 6020			
T	erm III (Spring)		Research Seminar in Employment			
•	Employment Relations 6040		Relations II: Qualitative Methods			
	Research Seminar in Employment					
	Relations III: Applied Research					
	Project					
•	One elective from Table 3					

T	able	1	Master	of	Emp	lovment	Relations	Schedule	of	Courses
-		-	TABELLER'S	•••	A.4.4.4	IC y LAL CLAS	TRATER CLAIR	Nensemu	U.a.	Courses

	Arts
	 Economics 6030 Labour Market
Business	Economics
 Business 8204 Human 	 History 6075 Advanced Studies in
Resource Management	Labour and Working-Class History
 Business 8210 Labour 	One of: Sociology 6360 Sociology of
Relations	Work, Sociology 6090 Special Area in
Business 9329 Labour Law	Sociology, or-Psychology 6402-Group
Employment Relations	Processes
Employment Relations 6050	One of Sociology 6090 Special Area in
Interpersonal skills in	Sociology or Business 9013 Collective
Employment Relations	Agreement Administration and
	Arbitration

Table 2 Master of Employment Relations Core Courses

Master of Employment Relations (cont'd)

*Note: If students elect to take both SOCI 6030 and BUSI 9013, one will be counted as an elective and the other as required.

Table 3 Master of Employment Relations Elective Courses

Labour-Management Relations			Labour Market and Social Policy			
•	Business 9013 Collective	A	nalysis			
	Agreement Administration and	•	Business 8108 Economics for			
	Arbitration*		Business			
•	Business 9030 International and	•	Economics 6000 Advanced Micro-			
	Comparative Industrial Relations		economic Theory			
•	Employment Relations 6030:	•	Economics 6001 Advanced Macro-			
	Independent Research Project	Į.	economic Theory			
•	Human Resource Management	•	Education 6410 Philosophical			
•	Business 9020 International		Issues in Educational Policy and			
	Human Resource Management		Leadership			
	Business	•	Employment Relations 6030:			
•	Business 9043 Team Building and		Independent Research Project			
	Diversity	•	Gender Studies 6000 Feminist			
	Business 9311 Seminar in Human		Theory			
	Resource-Management	•	History 6000 Advanced Studies in			
-	-Business 93-14 Business and	1	Newfoundland History			
	Taxation Law	•	History 6010 Advanced Studies in			
•	Business 9317 Current Topics in		Canadian History			
	Management	•	History 6070 Advanced Studies in			
•	Business 9324 Gender, Work and	1	Social History			
	Organizations	•	History 6090 Advanced Studies in			
•	Business 9328 Change		Women's History			
	Management	•	History 6120 Advanced Studies in			
•	Education 6203 Leadership:		Economic and Business History			
	Theory and Practice	•	Political Science 6700 Canadian			
•	Education 6600 Learning and		Politics			
	Motivation	•	Political Science 6740 Public			
•	Education 6706 Career Education		Administration			
	and Career Counselling	•	Political Science 6790 Public Policy			
•	Education 6802 Adult Learning	•	Sociology 6090 Special Area in			
	and Development		Sociology*			
•	Education 6805 Advanced Human	•	Sociology 6320 Gender and Society			
	Resource Communications	•	Sociology 6370 Feminist Theory			
•	Employment Relations 6030	1	and Methods			
	Independent Research Project					
	Psychology 6401 Attitudes and					
	Social Cognition					
	Psychology 6402 Group Processes					

Master of Employment Relations (cont'd)

Note: Students may require special permission from the instructor and/or relevant graduate program administrator prior to enrolling in an elective course.

46.5 Biochemistry

Page 652, 2016-2017 Calendar, under the heading <u>24.6.1 Program of</u> <u>Study</u>, amend the calendar entry as follows:

"24.6.1 Program of Study

The Degree of Master of Science is offered in Biochemistry or Food Science to full-time and part-time students.

The admission requirements for the graduate programs in Biochemistry and Food Science are as given under <u>Regulations Governing Master</u> of <u>Science Degrees</u>. <u>All students must enrol in Biochemistry 6999</u> (Seminars in Biochemistry and Food Science). Depending on the background and/or area of specialization, a candidate's program may include additional courses taken for credit in Biochemistry, Food Science, or related subjects.

The program of a candidate for the M.Sc. Degree shall be the responsibility of the supervisory committee, composed of the Supervisor and at least two other faculty members recommended with the concurrence of the Supervisor by the Head of the Department or delegate.

It is the responsibility of the student to arrange regular meetings with his or her supervisory committee. A semi-annual report, prepared by the Supervisor and signed by all members of the supervisory committee, is required to be given to the Head of the Department or delegate.

All-graduate-students are expected to attend and participate in-the Departmental seminars.

A student completing an M.Sc. Degree-will be required to present a seminar on his/her research area. The seminar will-normally take place during the last semester of the student's program.

Any deficiencies noted during the seminar should be carefully considered by the student and the supervisory committee prior to submission of the thesis for final examination."

Page 652, 2016-2017 Calendar, under the heading <u>24.6.2 Courses</u>, amend the calendar entry as follows:

Biochemistry (cont'd)

"24.6.2 Courses

A series of advanced courses in the areas outlined below will be offered. Normally only one course will be offered per semester.

- 6000 Advanced Topics in Lipid and Lipoprotein Metabolism
- 6000 6001-6009 Special Topics in Biochemistry
- 6010-6019 Special Topics in Nutrition and Metabolism
- 6020-6029 Special Topics in Food Science
- 6400 Control of Intermediary Metabolism
- 6460 Structural Biochemistry
- 6520 Nutritional Biochemistry
- 6530 Food Biochemistry
- 6590 Cellular, Molecular and Developmental Biology (credit restricted with Biology 6590 and Medicine 6590)
- 6630 Marine Biochemistry
- 6680 Processing and Quality of Foods
- 6999 Seminars in Biochemistry and Food Science"

Page 683, 2016-2017 Calendar, under the heading <u>32.3.1 Program of</u> <u>Study</u>, amend the calendar entry as follows:

"32.3.1 Program of Study

- 1. The Degree of Doctor of Philosophy is offered in Biochemistry or Food Science to full-time and part-time students.
- 2. The admission requirements for the graduate programs in Biochemistry and Food Science are as given under <u>General</u> <u>Regulations</u>. <u>All students must enrol in Biochemistry 6999</u> (Seminars in Biochemistry and Food Science). Depending on the background and/or area of specialization, a candidate's program may include additional courses taken for credit in Biochemistry, Food Science or related subjects.
- The program of a candidate for the Ph.D. Degree shall be the responsibility of the supervisory committee, composed of the Supervisor and at least two other faculty members recommended with the concurrence of the Supervisor by the Head.
- 4. It is the responsibility of the student to arrange regular meetings with his or her graduate supervisory committee. A semi-annual report, prepared by the Supervisor and signed by all members of the supervisory committee, is required to be given to the Head of the Department or delegate.
- 5. All candidates for the Ph.D. Degree shall be required to attend and participate in Departmental seminars.

Biochemistry (cont'd)

- 6. A candidate for the Ph.D. will be required to present a seminar on his/her research area within 18 months of starting the program and again immediately prior to the submission of thesis.
- 7. <u>5.</u> A candidate for the Ph.D. degree shall normally take the Comprehensive Examination within the first seven semesters of his or her program. The examination will have two components: the preparation of a grant proposal on a topic related to the student's research specialization followed by an oral examination of the proposal. Failure of this examination will result in the termination of the candidate's program."

Page 683, 2016-2017 Calendar, under the heading <u>32.3.2 Courses</u>, amend the calendar entry as follows:

"32.3.2 Courses

A series of advanced courses in the areas outlined below will be offered. Normally only one course will be offered per semester.

- 6000 Advanced Topics in Lipid and Lipoprotein Metabolism
- 6000 6001-6009 Special Topics in Biochemistry
- 6010-6019 Special Topics in Nutrition and Metabolism
- 6020-6029 Special Topics in Food Science
- 6400 Control of Intermediary Metabolism
- 6460 Structural Biochemistry
- 6520 Nutritional Biochemistry
- 6530 Food Biochemistry
- 6590 Cellular, Molecular and Developmental Biology (credit restricted with Biology 6590 and Medicine 6590)
- 6630 Marine Biochemistry
- 6680 Processing and Quality of Foods
- 6999 Seminars in Biochemistry and Food Science"

46.6 Computer Science

Page 656, 2016-2017 Calendar, under the heading <u>24.10.4 Courses</u>, amend the calendar entry to read as follows:

"24.10.4 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. Normally, students will be expected to complete their course work during the fall and winter semesters. Courses might not be offered in the spring semester.

Computer Science (cont'd)

601W Work Term

6758-6769 Special Topics in Computer Applications

6770-6790 Special Topics in Computer Science

690A/B Research Methods in Computer Science

6901 Applied Algorithms (credit may be obtained for only one of 6901 and 6783)

6902 Computational Complexity (credit may be obtained for only one of 6902 and 6743)

6903 Concurrent Computing

6904 Advanced Computer Architecture (credit may be obtained for only one of 6904 and 6722)

6905 Software Engineering (credit may only be obtained for one of 6905 or 6713)

6906 Numerical Methods (credit may only be obtained for one of 6906 or 6731)

6907 Introduction to Data Mining <u>Techniques and Methodologies</u> (credit may be obtained for only one of 6907 and 6762)

6908 Database Technology and Applications (credit may be obtained for only one of 6908 and 6751)

6909 Fundamentals of Computer Graphics (credit may be obtained for only one of 6909 or 6752)

6910 Services Computing, Semantic Web and Cloud Computing 6911 Bio-inspired Computing

6912 Autonomous Robotics (credit may be obtained for only one of 6912 and 6778)

6913 Bioinformatics

6914 3D Modelling and Rendering

6915 Machine Learning

6916 Security and Privacy

6918 Digital Image Processing (credit may be obtained for only one of 6918 or 6756)

6921 Syntax and Semantics of Programming Languages (credit may be obtained for only one of 6921 or 6711)

6922 Compiling Methods (credit may be obtained for only one of 6922 and 6712)

6924 Formal Grammars, Automata and Languages

6925 Advanced Operating Systems

6926 Performance Evaluation of Computer Systems <u>(credit may</u> obtained for only one of 6726 and 6926)

6928 Knowledge-Based Systems (credit may be obtained for only one of 6928 or 6755)

6929 Advanced Computational Geometry (credit may be obtained for only one of 6929 or 6745)

6930 Theory of Databases (credit may be obtained for only one of 6930 or 6742)

Computer Science (cont'd)

6931 Matrix Computations and Applications (credit may only be obtained for one of 6931 or 6732) (cross-listed with CMSC 6910)

6932 Matrix Computations in Control (credit may only be obtained for one of 6932 or 6738)

6933 Nonlinear and Linear Optimization (cross-listed with MATH 6202)

6999 Master's Project"

Page 687, 2016-2017 Calendar, under the heading <u>32.7.2 Courses</u>, amend the calendar entry to read as follows:

"32.7.2 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.

6758-6769 Special Topics in Computer Applications

6770-6790 Special Topics in Computer Science

690A/B Research Methods in Computer Science

6901 Applied Algorithms (credit may be obtained for only one of 6901 and 6783)

6902 Computational Complexity (credit may be obtained for only one of 6902 and 6743)

6903 Concurrent Computing

6904 Advanced Computer Architecture (credit may be obtained for only one of 6904 and 6722)

6905 Software Engineering (credit may only be obtained for one of 6905 or 6713)

6906 Numerical Methods (credit may only be obtained for one of 6906 or 6731)

6907 Introduction to Data Mining <u>Techniques and Methodologies</u> (credit may be obtained for only one of 6907 and 6762)

6908 Database Technology and Applications (credit may be obtained for only one of 6908 and 6751)

6909 Fundamentals of Computer Graphics (credit may be obtained for only one of 6909 or 6752)

6910 Services Computing, Semantic Web and Cloud Computing

6911 Bio-inspired Computing

6912 Autonomous Robotics (credit may be obtained for only one of 6912 and 6778)

6913 Bioinformatics

6914 3D Modelling and Rendering

6915 Machine Learning

6916 Security and Privacy

Computer Science (cont'd)

6918 Digital Image Processing (credit may be obtained for only one of 6918 or 6756)

6921 Syntax and Semantics of Programming Languages (credit may be obtained for only one of 6921 or 6711)

6922 Compiling Methods (credit may be obtained for only one of 6922 and 6712)

6924 Formal Grammars, Automata and Languages

6925 Advanced Operating Systems

6926 Performance Evaluation of Computer Systems (credit may obtained for only one of 6726 and 6926)

6928 Knowledge-Based Systems (credit may be obtained for only one of 6928 or 6755)

6929 Advanced Computational Geometry (credit may be obtained for only one of 6929 or 6745)

6930 Theory of Databases (credit may be obtained for only one of 6930 or 6742)

6931 Matrix Computations and Applications (credit may only be obtained for one of 6931 or 6732) (cross-listed with CMSC 6910)

6932 Matrix Computations in Control (credit may only be obtained for one of 6932 or 6738)

6933 Nonlinear and Linear Optimization (cross-listed with MATH 6202)"

46.7 Mathematics

Page 660, 2016-2017 Calendar, under the heading <u>24.18.3 Courses</u>, amend the calendar entry to read as follows:

"25.18.3 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:

Mathematics

6100 Dynamical Systems

6101 Modern Perturbation Theory

6102 Mathematical Biology

6104 Infinite Dimensional Dynamical Systems

6110 Advanced General Relativity

6112-6119 Special Topics in Applied Mathematics

6120 Theoretical Fluid Dynamics

6121 Functional Differential Equations

6130 Introduction to General Relativity (credit restricted with former 6106)

6160 Partial Differential Equations (credit restricted with former 6109)

Mathematics (cont'd)

6201 Numerical Methods for Partial Differential Equations 6202 Nonlinear and Linear Optimization (credit restricted with COMP 6933) 6204 Iterative Methods in Numerical Linear Algebra 6205-6209 Special Topics in Numerical Analysis 6210 Numerical Solution of Differential Equations 6212 Numerical Methods for Initial Value Problems 6230 Differentiable Manifolds and Riemannian Geometry 6299 Masters Project"

Page 705, 2016-2017 Calendar, under the heading <u>32.25.4 Courses</u>, amend the calendar entry to read as follows:

"32.25.4 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:

Mathematics

6100 Dynamical Systems 6101 Modern Perturbation Theory 6102 Mathematical Biology 6104 Infinite Dimensional Dynamical Systems 6110 Advanced General Relativity 6112-6119 Special Topics in Applied Mathematics 6120 Theoretical Fluid Dynamics 6121 Functional Differential Equations 6130 Introduction to General Relativity (credit restricted with former 6106) 6160 Partial Differential Equations (credit restricted with former 6109) 6201 Numerical Methods for Partial Differential Equations 6202 Nonlinear and Linear Optimization (credit restricted with COMP 6933) 6204 Iterative Methods in Numerical Linear Algebra 6205-6209 Special Topics in Numerical Analysis 6210 Numerical Solution of Differential Equations 6212 Numerical Methods for Initial Value Problems 6230 Differentiable Manifolds and Riemannian Geometry"

46.8 Psychology

Page 716, 2016-2017 Calendar, under the heading <u>33.3_Program_of</u> <u>Study</u>, amend the calendar entry to read as follows:

Psychology (cont'd)

"33.3 Program of Study

Students are required to successfully complete at least 66 credit hours in regulation graduate courses. These include:

a. 9 credit hours in statistics and research design courses (6000, 6001, 6602);

b. 30 <u>33</u> credit hours in core courses (6611, 6612, 6613, 6620, 6623, 6630, 6631, 6632, 6633, 6650, <u>6670</u>); and

c. 27 credit hours in practicum courses (7010, 7020, 7021, 7030, 7031, 7032, 7033, 7034, 7035).

Students must also complete a year-long internship, pass a comprehensive exam and successfully complete a research thesis.

33.3.1 Comprehensive Examination

The Psy.D. comprehensive exam, consisting of a written and an oral component, shall be taken during the third year of the program. The exam is intended to demonstrate clinical application of the knowledge acquired through course work and practica. The comprehensive exam will be administered according to the guidelines prescribed in the University Calendar for Ph.D. comprehensive examinations.

33.3.2 Thesis

Students will complete a thesis that is applied in nature and relevant to the practice and science of clinical psychology and the communities it serves. The School of Graduate Studies General Regulations, Evaluation of Ph.D. and Psy.D. Theses concerning evaluation of Ph.D. theses will be followed.

33.3.3 Predoctoral Internship

All students will be required to complete a twelve-month, 1750 clockhour predoctoral internship."

Page 716, 2016-2017 Calendar, under the heading <u>33.4 Courses</u>, amend the calendar entry as follows:

"33.4 Courses

6000 Advanced Statistics

- 6001 Research Design
- 6602 Research Design in Clinical Psychology
- 6611 Ethics of Professional Practice
- 6612 Adult Psychopathology
- 6613 Child Psychopathology
- 6614 Selected Topics in Psychopathology
- 6620 Principles of Adult Assessment and Diagnosis

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Psychology (cont'd)

- 6621 Principles of Child Assessment and Diagnosis
- 6622 Selected Topics in Assessment and Diagnosis
- 6623 Child Psychopathology, Assessment and Diagnosis
- 6630 Principles of Intervention with Adults
- 6631 Principles of Intervention with Children

6632 Community Interventions

6633 Clinical Psychopharmacology

6634 Selected Topics in Intervention

6640 Consultation Processes

6650 Supervision

6660-6669 Special Topics in Clinical Psychology

<u>6670-</u> Interprofessional Education (3-credit hours over six terms: Fall and Winter terms for Years 1, 2 and 3)

and whiter terms for rears 1, 2 and 5)

7010 Practicum in Ethics and Relationship Skills

7020 Practicum in Adult Assessment and Diagnosis

7022 Practicum in Child Assessment and Diagnosis

7030 Practicum in Assessment and Intervention I

7031 Practicum in Assessment and Intervention II

7032 Practicum in Community Intervention and Interprofessional Practice

7033 Practicum in Advanced Assessment and Intervention I

- 7034 Practicum in Advanced Assessment and Intervention II
- 7035 Practicum in Rural Intervention and Interprofessional Practice
- 7050 Practicum in Supervision I

7051 Practicum in Supervision II"

47. <u>Memorandum from the Senate Committee on Elections and</u> <u>Committees regarding GCSU Representation on the Executive</u> <u>Committee of Senate</u>

The following Grenfell Campus Student Union nomination for student representation on Senate Standing Committees, effective immediately and lasting until April 30, 2017, was approved:

Executive Committee of Senate Sofia Descalzi

REGULAR AGENDA

48. <u>REPORT OF THE SENATE COMMITTEE ON UNDERGRADUATE</u> <u>STUDIES</u>

48.1 Section Academic Misconduct

It was moved by Professor Walsh and seconded by Dr. Mulligan to approve the calendar changes. It was then suggested that in paragraph 3 to change the words "the accused" to read "the student". It was moved

Section Academic Misconduct (cont'd)

by Dr. McKay, seconded by Dr. Foster, and carried that these calendar changes along with the above friendly amendment be approved. Dr. Sullivan agreed that the Senate Committee on Undergraduate Studies have another look at the document for any further language changes and, if any, will report back.

Page 72, 2016-2017 Calendar, under the heading <u>6.12.6.5 Penalties in</u> the Case of Resolution by the Senate Committee on Undergraduate <u>Studies or the Senate Committee on Academic Appeals</u>, amend the calendar entry as follows:

"6.12.6.5 Penalties in the Case of Resolution by the Senate Committee on Undergraduate Studies or the Senate Committee on Academic Appeals

A student who has been found guilty of an academic offence will be subject to a penalty or penalties commensurate with the offence. Some cases may warrant more than one penalty for the same offence, and previous academic misconduct will be taken into account in determining severity of penalties. Enforcement of penalties resulting from **Procedures for Resolution of Alleged Academic Offences by the Senate Committee on Undergraduate Studies** will be overseen by the Registrar. In addition to a Reprimand, which shall be in the nature of a warning to the student that the student's behavior has been unacceptable to the University, the range of penalties and their determination is:

- 1. **Resubmission**: of work with appropriate reduction in grade; will allow a student to complete and submit the work a second time.
- Reduction of grade: will apply to an examination, test, or assignment to which an offence is relevant, or to the entire course, and will be decided by the Senate Committee on Undergraduate Studies or the Senate Committee on Academic Appeals.
- 3. Rescinding of scholarships, bursaries or other awards: the recommendation for rescinding of scholarships, bursaries or other awards will be made by the Senate Committee on Undergraduate Studies or the Senate Committee on Academie Appeals to the Senate Committee on Scholarships and Awards for a final decision. In the case of a decision by the Senate Committee on Academic Appeals to rescind scholarships, bursaries or other awards, the decision will be forwarded to the Senate Committee on Scholarships and Awards for information. The Senate Committee on Undergraduate Studies or the Senate Committee on Undergraduate Studies or the Senate Committee on Scholarships and Awards for information. The Senate Committee on Undergraduate Studies or the Senate Committee on Academic Appeals will notify the accused

Section Academic Misconduct (cont'd)

student, in writing or by email, of the recommendation or decision.

- 4. Probation: the period of probation will be determined by the Senate Committee on Undergraduate Studies or the Senate Committee on Academic Appeals. The impact of being placed on probation is that the commission of any further academic offence during the period of probation may lead to suspension or expulsion.
- 5. Suspension: will apply to a course, department, faculty, school, or the University. The period of suspension will be determined by the Senate Committee on Undergraduate Studies or the Senate Committee on Academic Appeals and shall not exceed six consecutive semesters.
- 6. Expulsion: the recommendation for expulsion from the University will be made by the Senate Committee on Undergraduate Studies or the Senate Committee on Academic Appeals to the President of the University for a final decision. Prior to the President's decision, the Senate Committee on Undergraduate Studies or the Senate Committee on Academic Appeals will notify the accused, in writing or by email, of the recommendation for expulsion from the University. The accused will be allowed a period of two weeks following the date of release of such notification to lodge an appeal before the President's final decision concerning expulsion from the University. If the penalty was assigned by the Senate Committee on Undergraduate Studies, any such appeal should be made in writing or by email to the Senate Committee on Academic Appeals, c/o the Office of the Registrar. If the penalty was assigned by the Senate Committee on Academic Appeals, any such appeal should be made in writing or by email to the Executive Committee of Senate, c/o the Office of the Registrar.
- 7. Rescinding of degree: the recommendation for the rescinding of a degree previously awarded by the University will be made by the Senate Committee on Undergraduate Studies or the Senate Committee on Academic Appeals to Senate for a final decision. Prior to Senate's decision the Senate Committee on Undergraduate Studies or the Senate Committee on Academic Appeals will notify the accused, in writing, of the recommendation for rescinding of the degree. The accused will be allowed a period of two weeks following the date of release of such notification to lodge an appeal before the Senate's final decision concerning the rescinding of the degree. If the penalty was assigned by the Senate Committee on Undergraduate

Section Academic Misconduct (cont'd)

Studies, any such appeal should be made in writing or by email to the Senate Committee on Academic Appeals, c/o the Office of the Registrar. If the penalty was assigned by the Senate Committee on Academic Appeals, any such appeal should be made in writing to the Executive Committee of Senate, c/o the Office of the Registrar."

49. <u>Constitution - Faculty Council, Faculty of Education</u>

A memorandum dated October 14, 2016, was received from Gina Jackson, Secretary, Faculty Council, Faculty of Education, proposing amendments to its Constitution and Bylaws which were accepted by the Faculty Council of the Faculty of Education on October 11, 2016.

It was moved by Dr. Anderson, seconded by Dr. McKay, and carried that the proposed amendments to the Constitution and Bylaws of the Faculty of Education be approved for submission to the Board of Regents.

50. Constitution - Faculty Council, Faculty of Business Administration

An email dated October 20, 2016, was received from Kirby Shannahan, Secretary, Faculty Council, Faculty of Business Administration, proposing amendments to its Constitution and Bylaws which were accepted by the Faculty Council of the Faculty of Business Administration on October 14, 2016.

It was moved by Dr. Zerbe, seconded by Dr. Foster, and carried that the proposed amendments to the Constitution and Bylaws of the Faculty of Business Administration be approved for submission to the Board of Regents.

51. Senate Committee on Academic Appeals - Terms of Reference

A memorandum dated November 8, 2016, was received from Sheila M. Singleton, Secretary, Senate Committee on Academic Appeals, proposing changes to the Terms of Reference and Procedures for hearing appeals for the Senate Committee on Academic Appeals.

Dr. Martin Mulligan presented the changes to Senate. The Terms of Reference and Procedures for hearing appeals would now read as follows:

"Senate Committee on Academic Appeals

Membership:

(a) an appropriate number of academic staff members; insofar as possible, the Committee shall have balanced representation from the faculties/schools/campuses of the University;

(b) an appropriate number of students, at least one appointed by the Memorial University Students' Union, at least one by the Marine Institute Students' Union, at least one by the Grenfell Campus Student Union and at least one graduate student, appointed by the Graduate Students' Union;

(c) the Secretary of Senate or delegate, who shall serve as Secretary to the Committee.

Committee members actively hearing an appeal upon the expiration of their term will remain a member of the Committee until the hearing concludes and a decision is reached.

Terms of Reference:

To consider appeals and render decisions on behalf of the Senate.

Procedure to be followed by the Senate Committee on Academic Appeals in Hearing Appeals

- An appeal shall be heard by an Appeal Panel consisting of five members of the Committee on Academic Appeals, including one student member, the Secretary of the Committee or delegate, and three academic staff members. They shall be invited to be members of the Appeal Panel by the Secretary of the Committee on Academic Appeals, following consultation with the Chair of the Committee on Academic Appeals. Individuals will not be selected whose presence may create bias or reasonable apprehension of bias, who would be in a conflict of interest, or whose other commitments would not permit a timely scheduling of the hearing.
- 2. Each Appeal Panel shall choose its own Chair.
- Members of Appeal Panels shall be bound by confidentiality in respect of information received in hearing an appeal. Information shall be disclosed only as is reasonably necessary to

gather information relevant to the appeal, to implement the decision regarding the appeal, or as required by law.

- 4. Appeals shall normally be heard *de novo*.
- 5. The party appealing a decision made at a lower level is responsible for presenting the relevant information and documents for consideration in the hearing of the appeal. The Letter of Appeal must be in writing and shall contain the following:
 - Name, student number(s), current address and preferred contact information: telephone number(s), @mun email address or other active email address(es);
 - b. A copy of the decision giving rise to the appeal;
 - c. Supporting documentation;
 - d. A description of the matter under appeal;
 - e. The grounds of appeal
 - f. Names and contact information for individuals that the appellant wishes to be interviewed by the Appeal Panel;
 - g. The resolution being sought.

The Letter of Appeal must be delivered to the Secretary of the Committee who shall distribute it to the members of the Appeal Panel.

- 6. Where the matter being appealed is not the application of an academic regulation, the Appeal Panel shall dismiss the appeal without a hearing.
- 7. The Secretary of the Committee shall provide a copy of the Letter of Appeal to the other party (or parties) to the appeal and may request an initial written response.
- 8. Oral hearings shall be the usual procedure for hearings. Any party to the appeal may waive the right to an oral hearing, in which case the Appeal Panel shall consider the written submission of that party but may hear oral presentations from other parties.
- 9. The Appeal Panel shall meet as often as necessary to consider the appeal and shall normally proceed in the following manner:

- a. It shall examine all documents submitted with the appeal and all documents obtained from the committee(s) which have previously investigated the case or heard the case under appeal;
- b. It may examine any other written evidence and interview other individuals as it deems necessary;
- c. it shall hear from the other party to the appeal;
- d. It shall provide copies of all documents and written summaries of all interviews conducted by the Appeal Panel, to the party bringing the appeal before hearing from that party;
- e. It shall hear from the party bringing the appeal, either orally or by a written submission.
- 10. If either party fails to provide information requested by the Appeal Panel for the consideration of the appeal by the date requested, the Appeal Panel shall proceed with hearing the appeal.
- 11. Any student appearing before the Committee has the right to be accompanied by a registered student or a member of the faculty or staff of the University. The name and contact information of such person shall be provided to the Secretary of the Committee prior to the student's meeting with the Appeal Panel.
- 12. Should the appellant wish to present the appeal in person before the Appeal Panel, the Secretary of the Committee shall send a notice of meeting to the appellant, providing the location, the date and the start and anticipated end times of the meeting. This meeting shall proceed as scheduled unless a postponement is granted by the Chair of the Appeal Panel in advance of that date. A request to reschedule the meeting shall be made as far in advance of the meeting date as possible. Requests for postponements made on the meeting date shall be granted only where it would be unfair to proceed.
- 13. If the appellant fails to respond to the notice of meeting time with the Appeal Panel within one week of notification by email of the date on which the meeting is scheduled, or fails, without acceptable cause duly authenticated in writing, to attend the meeting, the appeal shall be considered and a decision reached

on the basis of the material that was made available to the appellant by the Appeal Panel.

- 14. The Appeal Panel, after receiving all information, shall meet in closed session to consider the information and make its decision using a balance of probabilities standard.
- 15. The decision of a majority of the members of the Appeal Panel present throughout the entire process shall constitute the decision of the Appeal Panel.
- 16. The decision of the Appeal Panel, together with written reasons for the decision, shall be delivered to both parties to the appeal by the Secretary of the Committee.
- 17. The Appeal Panel on behalf of the Committee reserves the right to provide direction regarding an appeal to the appellant and/or to the committee whose decision is being appealed.
- 18. There are no firm timelines for the hearing of appeals. However, in the interest of fairness, appeals should be heard and decisions provided as soon as is reasonably practical.
- 19. The decision of the Appeal Panel, together with reasons for the decision and all associated documentation, will be retained in the Senate records."

It was moved by Dr. Mulligan and seconded by Professor Walsh that the terms of reference and procedures for hearing appeals be approved. One member of Senate was supportive of the document but had issues with paragraphs 12, 13, and 18. All three of these were in the original Terms of Reference. Dr. Mulligan agreed to discuss these three paragraphs with the Secretary of the Committee on Academic Appeals. When put to a vote, the motion passed with potential changes to above.

52. Faculty of Medicine – Calendar Change to Alert and Inform Students of Competency Based Medical Education

A memorandum dated December 5, 2016, was received from Dr. Margaret Steele, Dean of Faculty of Medicine, proposing a calendar change to alert and inform students of Competency Based Medical Education.

Faculty of Medicine – Calendar Change to Alert and Inform Students of Competency Based Medical Education (cont'd)

Commencing July 1, 2017, residency programs in the Faculty of Medicine at Memorial University of Newfoundland are scheduled to begin implementing Competency Based Medical Education (CBME). The transition to CBME is a mandated initiative of the Royal College of Physicians and Surgeons of Canada (RCPSC) and the College of Family Physicians of Canada (CFPC) that will transition medical education from a traditional time-based model to a hybrid form of CBME. This curriculum change will result in more targeted learning outcomes and involve more frequent, formative assessments within the clinical workplace to ensure residents are developing and receiving feedback on the skills they require. Residency programs in Canada are adopting the CBME curriculum in gradual phases based on the rollout schedule developed by the RCPSC.

Given the complex nature of a transition to CBME, disciplines within the Faculty of Medicine are still in the process of developing the curriculum and assessment system changes that are required to complete the transition to CBME. Therefore, the Faculty of Medicine are unable, at this time, to provide detailed information regarding what this curriculum will entail within the disciplines. As more information becomes available, further details will be added to the calendar.

In anticipation of the transition, the Postgraduate Medical Education (PGME) office and the discipline offices scheduled to implement the CBME curriculum in July have, over the last year, taken necessary strides to ensure that prospective residents are aware that the new curriculum is scheduled to be in place starting July 2017. The PGME office has updated its website to provide pertinent information regarding the new curriculum change. In addition, the disciplines scheduled to have the curriculum in place starting July 2017 have included detailed descriptions of the CBME curriculum in the Canadian Resident Matching Service program descriptions – ensuring that residents applying to the residency program are aware that it is very possible CBME will be in place if they are matched to that discipline.

In order to alert and inform prospective resident applicants that residency programs at Memorial University of Newfoundland have begun the process to transition to a CBME curriculum and that certain disciplines are scheduled to have the curriculum in place starting July 2017, the PGME office wishes to have the Calendar change noted below included in the 2017/2018 Calendar.

The proposed Calendar change was approved by the Faculty of Medicine Faculty Council on December 2, 2016 via an email vote.

Faculty of Medicine – Calendar Change to Alert and Inform Students of Competency Based Medical Education (cont'd)

It was moved by Dr. Steele, seconded by Dr. Phillips, and carried that on page 408, 2016-2017 Calendar, under the heading <u>8.4 Evaluation</u>, amend the calendar entry to read as follows:

"8.4 Evaluation

Important Note Regarding Competency Based Medical Education

Commencing July 1, 2017, residency programs at Memorial University of Newfoundland will begin implementing Competency Based Medical Education. Competence by Design (CBD) is a mandated initiative of the Royal College of Physicians and Surgeons of Canada (RCPSC) that will transition medical education from a traditional time-based model to a hybrid form of competency-based medical education. The Competencybased curriculum for Family Medicine residency programs is called the Triple C Competency-based Curriculum. For more information regarding Competency Based Medical Education and the rollout schedule for residency programs at Memorial University of Newfoundland, please visit the Postgraduate Medical Education (PGME) website at www.med.mun.ca/pgme, the RCPSC website at www.royalcollege.ca/rcsite/home-e, and the College of Family Physicians of Canada (CFPC) website at http://www.cfpc.ca/Home/.

Each Resident is expected to complete the requirements of the residency program, as outlined by the discipline Residency Program Committee (RPC), for each year of the program, and to meet the prescribed goals and objectives through the completion of mandatory rotations. A Resident is evaluated throughout each rotation. The evaluation of the Resident's performance is conducted by a subcommittee of the RPC and is based on written assessments and performance-based direct observation. The results of the evaluation indicate the competency level of the Resident for each goal and objective of the rotation. The level of responsibility given to a Resident is based on regular evaluation of abilities by faculty.

Assessment methods used in residency programs include, but are not limited to, In-Training Evaluation Reports (ITERs), In-Training Assessment Reports (ITARs), daily shift cards, and field notes. The assessment methods used are discipline-dependent and in accordance with the appropriate accreditation standards."

53. Constitutions for the three Schools at Grenfell Campus

Constitutions for each of the three Schools at Grenfell Campus were received.

Dr. Laura Robinson, Dean, School of Arts and Social Science, presented the Constitution. It was moved by Dr. Anderson, seconded by Dr. Emke, and carried that the Constitution for the School of Arts and Social Science be approved for submission to the Board of Regents.

Dr. Michele Piercey-Normore, Dean, School of Science and the Environment, presented the Constitution. An amended copy was posted to D2L prior to the meeting. It was moved by Dr. Anderson, seconded by Dr. Abhyankar, and carried that the amended Constitution for the School of Science and the Environment be approved for submission to the Board of Regents.

Professor Todd Hennessey, Dean, School of Fine Arts, presented the Constitution. It was moved by Dr. Emke, seconded by Dr. Haghiri, and carried that the Constitution for the School of Fine Arts be approved for submission to the Board of Regents.

54. <u>REMARKS FROM THE CHAIR - QUESTIONS/COMMENTS</u> <u>FROM SENATORS</u>

Dr. Noreen Golfman gave a brief update on the university budget.

The President commented on the following:

- Congratulated Dr. Trevor Bell on receiving the 2016 Arctic Inspiration Prize.
- Congratulated the MBA case team on winning the 2017 Concordia Cup. The win makes Memorial the most successful school in the 36-year history of the prestigious business competition.
- President's Awards Ceremony.
- The tender for Core Science has been reissued and is out for bids. Tenders close February 28th.
- Acknowledged Dr. Mary Bluechardt on her acceptance of President and Vice-Chancellor of Mount Saint Vincent University in Nova Scotia.
- Vice-President (Research) elections are underway to create a Search Committee.
- Letters will be soon going out for election of faculty members for the Search Committee for Vice-President (Grenfell Campus).
- Fires in the QEII Library. A formal investigation has begun by the RNC. This is a criminal matter and will be dealt with.

- 55. Any other business
- 55.1 <u>Possible Room Location for Senate Meetings Room A1046</u> No further update given.
- 56. ADJOURNMENT

The meeting adjourned at 5:15 p.m.

CHAIRMAN

Jennifer Porter SECRETARY

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