

SBME COURSE LIST – GRADUATE STUDENTS (PhD, MASc, MEng)

Updated June 2023

Please consult our website for specific **program requirements**: <https://www.bme.ubc.ca/graduate/current-students/courses/>

- A maximum of 6 credits at an undergraduate level (courses numbered 300-499) can be accepted toward your degree.
 - Courses listed below may not be offered annually.
 - If you are not able to self-register for a course please contact the respective department {SBME staff cannot assist with non BMEG course registration}. Some departments may require that you fill in a registration form.
- If a course relevant to your program is not listed here please email students@sbme.ubc.ca and include the course link.
- This course list will be updated twice a year, and it will not reflect new courses added after the date above.**

Course Code	Credit	Course Name	Life Science	Applied Science	Elective	Notes:
AMNE301	3	The Technical Terms of Medicine and Biological Science			Elective	
ANAT511	3	Fundamentals of Body Design: Basic Principles in Human Anatomy as Illustrated by the Organization of the Back and Upper Limb	Life Science			
ANAT512	3	Functional Human Anatomy of Head and Neck Systems	Life Science			
APBI490	3	Advanced Topics in Applied Biology	Life Science			
APSC383	3	Prototyping		Applied Science		
APSC440	3	Management Fundamentals for Technology-Based Product Marketing and Development			Elective	
APSC512	3	Intellectual Property Management and Technology Commercialization			Elective	
APSC540	3	Business Decisions for Engineering Ventures			Elective	
APSC541	3	Technology Entrepreneurship for Engineers			Elective	
APSC598H	3	Engineering Management Systems Fundamentals		Applied Science		
BAEN505	1.5	Entrepreneurial Finance			Elective	
BASC500	1.5	Process Fundamentals			Elective	
BIOC302	3	General Biochemistry	Life Science			
BIOC450	3	Membrane Biochemistry	Life Science			
BIOC554	1.5	Nucleic Acids: DNA/RNA Structure and Function	Life Science			
BIOF501A	3	Special Topics in Bioinformatics	Life Science	Applied Science		
BIOL335	3	Molecular Genetics	Life Science			
BIOL425	3	Biomechanics	Life Science			
BIOL430	3	Genome Evolution	Life Science			
BIOL448G	3	Directed Studies in Biology	Life Science			
BIOL530	3	The Biology of the Cell	Life Science			
BIOL548O	1	Advanced Topics in Biology - ADV TOPICS BIOL	Life Science			
BMEG310	4	Introduction to Bioinformatics	Life Science			
BMEG321	3	Biomedical Instrumentation		Applied Science		
BMEG425	3	Topics in Biomedical Engineering - BME RBTCS		Applied Science		Used to be BMEG 400F
BMEG400H	3	Topics in Biomedical Engineering - SYN BIO BOOTCAMP		Applied Science		
BMEG401	3	Economics of Healthcare Solutions			Elective	
BMEG470	3	Cellular Responses to Forces and Biomaterials	Life Science	Applied Science		
BMEG474	3	Stem Cells and Regenerative Medicine	Life Science	Applied Science		
BMEG500	1	Orientation to the Clinical Environment			Elective	
BMEG501	4	Interdisciplinary Team Project in Medical Innovation			Elective	It used to be 3 credits until 2017
BMEG510	4	Anatomy and Physiology with Applications to Biomedical Devices	Life Science			
BMEG511	2	Fundamentals of Applied Pathophysiology in Biomedical Engineering	Life Science			
BMEG550	3	Biomedical Engineering Technology		Applied Science		
BMEG554A	1	Directed Studies in Biomedical Engineering				
BMEG554B	2	Directed Studies in Biomedical Engineering				
BMEG554C	3	Directed Studies in Biomedical Engineering		Applied Science		
BMEG556	3	Clinical and Industrial Practice of Biomedical Engineering		Applied Science		
BMEG557	1	Statistical Methods for Evaluating Medical Technologies		Applied Science		

Course Code	Credit	Course Name	Life Science	Applied Science	Elective	Notes:
BMEG580	3	Biomedical Engineering Topics at the Interface of Medicine and Engineering				Required – all stud.
BMEG581	3	Professional and Academic Development		Applied Science		PhD Required
BMEG590	1	Professional Skills Workshop Course (Discontinued)			Elective	
BMEG521	3	Topics in Biomedical Engineering - LNR SYS OPTCS			Elective	Used to be BMEG 591B
BMEG522	3	Topics in Biomedical Engineering - Modern Biomedical Optical Imaging		Applied Science		Used to be BMEG 591C
BMEG523	3	Topics in Biomedical Engineering - Clinical Informatics	Life Science	Applied Science		Used to be BMEG 591D
BMEG524	3	Topics in Biomedical Engineering - Genome Informatics	Life Science	Applied Science		Used to be BMEG 591E
BMEG591F	3	Topics in Biomedical Engineering - Mammalian Synthetic Biology	Life Science	Applied Science		
BMEG591G	3	Topics in Biomedical Engineering - Science Communications			Elective	
BMEG591I	1.5	Topics in Biomedical Engineering - Cellular and Molecular Immunotherapies	Life Science			
BMEG591K	3	Topics in Biomedical Engineering - Wearables			Elective	
BMEG591M	2	Topics in Biomedical Engineering -		Applied Science		
BMEG591V	1.5	Topics in Biomedical Engineering - Vaccines	Life Science			
BMEG597	6	Master of Engineering Project				MENG only
BMEG598	1	Biomedical Engineering Seminar				Required - All
BMEG599	12	MASc Thesis				MASC only
BMEG699	0	Doctoral Dissertation				PHD only
CAPS391	3	Introduction to gross human anatomy	Life Science			
CAPS426	3	Physiological Basis of Central Nervous System Functions	Life Science			
CELL502	1.5	Current Topics in Developmental Biology	Life Science			
CELL503	1.5	Current Topics in Cellular Communication	Life Science			
CELL504	1.5	Current Topics in Cytoskeleton and Cell Motility	Life Science			
CELL505	1.5	Current Topics in Intracellular Trafficking	Life Science			
CELL506	1.5	Fluorescence Microscopy	Life Science			
CELL507	1.5	Special Techniques and Protocols in Cell and Developmental Biology	Life Science			
CELL508	1.5	Molecular Genetic Analysis	Life Science			
CELL509	1.5	Cell Systems Biology	Life Science			
CELL511	1.5	Cellular and Molecular Mechanisms of Human Disease	Life Science			
CHBE470	3	Transport in Biological Systems		Applied Science		
CHBE478	3	Polymer Science and Processing		Applied Science		
CHBE497B	3	Topics in Chemical and Biological Engineering. - BIOANALY & DIAGN	Life Science			
CHBE560	3	Biological Engineering		Applied Science		
CHBE564	3	Industrial Biotechnology Laboratory		Applied Science		
CHBE570	3	Advanced Transport in Biological Systems		Applied Science		
CHBE573	3	Environmental Engineering and Sustainability			Elective	
CHBE587	3	Interfacial Phenomena			Elective	
CHEM521B	3	Topics in Inorganic Chemistry			Elective	
CHEM527	3	Nanomaterials		Applied Science		
CHEM528	3	Nanomaterial Characterization			Elective	
CHEM573	3	Application of Spectroscopy to Organic Structural Determinations			Elective	
CHEM588	3	Topics in Chemistry		Applied Science		
CPEN541	3	Human Interface Technologies		Applied Science		
CPSC304	3	Introduction to Relational Databases		Applied Science		
CPSC330	3	Applied Machine Learning		Applied Science		
CPSC340	3	Machine Learning and Data Mining		Applied Science		
CPSC340	3	Machine Learning and Data Mining		Applied Science		
CPSC425	3	Computer Vision			Elective	

Course Code	Credit	Course Name	Life Science	Applied Science	Elective	Notes:
CPSC501	3	Theory of Automata, Formal Languages and Computability			Elective	
CPSC522	3	Artificial Intelligence		Applied Science		
CPSC530L	3	Topics in Information Processing - BEHAVIORALMODELS		Applied Science		
CPSC530P	3	Sensorimotor Computation		Applied Science		
CPSC532L	3	Topics in Artificial Intelligence - STRATEGIC MODELS			Elective	
CPSC532M	3	Topics in Artificial Intelligence - INTRO ML AND DM		Applied Science		
CPSC532W	3	Topics in Artificial Intelligence - PROB PROG			Elective	
CPSC533R	3	Topics in Computer Graphics - VISUAL AI			Elective	
CPSC533V	3	Topics in Computer Graphics - LEARNING TO MOVE		Applied Science		
CPSC535P	3	Digital Humans		Applied Science		
CPSC540	3	Machine Learning		Applied Science		
CPSC543	3	Physcal User Interface Design and Evaluation		Applied Science		
CPSC544	3	Human Computer Interaction		Applied Science		
CPSC547	3	Information Visualization			Elective	
CPSC554C	3	Topics in Human-Computer Interaction		Applied Science		
CPSC554K	3	Topics in Human-Computer Interaction - DFP PROJECT		Applied Science		
EECE542	3	Computer Integrated Surgery		Applied Science		
EECE562	3	Statistical Signal Processing		Applied Science		
EECE564	3	Detection and Estimation of Signals in Noise			Elective	
EECE570	3	Fundamentals of Visual Computing		Applied Science		
EECE571D	3	Detection, Estimation, and Learning		Applied Science		
EECE571F	3	Electrical Engineering Seminar and Special Problems – DL W STRUCTURE			Elective	
EECE571R	3	Electrical Engineering Seminar Special Problems: Intro to Robotics			Elective	
EECE571T	3	Electrical Engineering Seminar and Special Problems - ADV MCH LNG TL		Applied Science		
EECE589	3	Introduction to Robotics			Elective	
ELEC315	4	Electronic materials and devices			Elective	
ELEC413	3	Semiconductor Lasers			Elective	
ELEC422	3	Biosignals and Systems		Applied Science		
ELEC441	3	Control Systems			Elective	
ELEC462	3	Sensors and Actuators in Microsystems		Applied Science		
ELEC473	3	Biological Micro-Electro-Mechanical Systems		Applied Science		
ELEC474	3	Biophotonics		Applied Science		
ELEC521	3	Biomedical Microdevices		Applied Science		
ELEC523	3	Medical Imaging		Applied Science		
ELEC524	3	Advanced Biophotonics		Applied Science		
ELEC544	3	Advanced Microsystems Design		Applied Science		
ELEC546	3	Micro and Nano Fabrication Technologies		Applied Science		
ELEC571M	3	Electrical Engineering Seminar and Special Problems - MATH METHODS			Elective	
ELEC584	6	Nanophotonics Fabrication		Applied Science		
KIN300	3	Human Athletic Performance			Elective	
KIN316	3	Biomedical Properties of Tissues	Life Science	Applied Science		
KIN390	3	Human Functional Musculoskeletal Anatomy	Life Science			
KIN438	3	Skeletal Muscle Physiology: Molecular Adaptions to Training, Disuse and Aging			Elective	
KIN473	3	Neuroanatomy of Human Movement	Life Science			
KIN500P	3	Killam Connection: Healthy Aging from Cells to Societies	Life Science			
MATH560	3	Mathematical Biology	Life Science			
MATH563	3	Mathematical Cell Biology (Modelling of Cell-Scale Biology)			Elective	
MATH612D	3	Topics in Mathematical Biology - Single Cell Analysis		Applied Science		
MECH507	3	Analytical Dynamics			Elective	
MECH512	3	Experimental Methods in Mechanics		Applied Science		
MECH521	4	Fundamentals of Microelectromechanical Systems		Applied Science		
MECH533	3	Biofluids		Applied Science		

Course Code	Credit	Course Name	Life Science	Applied Science	Elective	Notes:
MECH535	3	Orthopaedic Biomechanics		Applied Science		
MECH536	3	Fundamentals of Injury Biomechanics		Applied Science		
MECH555	4	Fundamentals of Microelectromechanical Systems			Elective	
MECH598	2	Research Seminar			Elective	
MECH698	3	Seminar			Elective	
MECH 433	3	Biofluids		Applied Science		
MECH 436	3	Fundamentals of Injury Biomechanics		Applied Science		
MEDG419	3	Developmental Origin of Human Disorders	Life Science			
MEDG420	3	Human Genomics and Medical Genetics	Life Science			
MEDG421	3	Genetics and Cell Biology of Cancer	Life Science			
MEDI501	3	Molecular and Cellular Biology of Experimental Medicine			Elective	
MEDI570	3	Cardiovascular Pathophysiology	Life Science			
MICB302	3	Immunology	Life Science			
MICB413	3	Topics in Microbiome Research	Life Science			
MICB418	3	Industrial Microbiology and Biotechnology	Life Science			
MICB502	3	Advanced Immunogenetics	Life Science			
MICB507	3	Topics in Molecular Pathogenesis and Immunology	Life Science			
MINE553	3	Modeling of Industrial Systems			Elective	
MTRL471	3	Advanced Nanofibre Technology			Elective	
MTRL495	3	Biomaterials		Applied Science		
MTRL571	3	Advanced Nanofibre Technology			Elective	
MTRL595	3	Advanced Biomaterials		Applied Science		
NRSC500	6	Neuroscience I	Life Science			
NRSC501	6	Neuroscience II	Life Science			
OBST503	3	Fetal and Perinatal Metabolism	Life Science			
OBST507	3	Perinatal Epidemiology	Life Science			
OBST510	3	Gynecologic Pathologies: Benign and Malignant	Life Science			
ONCO502	3	Concepts in Oncology	Life Science			
PATH402	4	Medical Laboratory Science: Haematology	Life Science			
PATH501	3	Foundations of Human Histopathology	Life Science			
PATH547	3	Techniques in Molecular Biology and Experimental Pathology	Life Science			
PATH548C	3	The Pathology of Types I and II Diabetes	Life Science			
PATH570	3	Cardiovascular Pathophysiology	Life Science			
PCTH325	3	Rational Basis of Drug Therapy	Life Science			
PCTH502	4	Drugs and Intracellular Communication			Elective	
PHAR502	4	Advanced Concepts in Pharmacokinetics	Life Science			
PHAR515	3	Nanomedicines	Life Science			
PHAR516	2	Polymeric Drug and Protein Delivery	Life Science			
PHAR517	2	Lipid-Based Drug Delivery	Life Science			
PHAR518	4	Diagnostic Imaging and Radiopharmaceuticals	Life Science			
PHAR521	1.5	Basic Theory & Practice of Scanning Electron Microscopy and Dynamic Light Scattering	Life Science	Applied Science		Used to be PHAR 525A
PHAR592B	1	Fundamentals of the Pharmaceutical Sciences Disciplines	Life Science			
PHIL333A	3	Bio-Medical Ethics - BIOMEDICAL ETHIC			Elective	
PHRM332	3	Practical Applications of Pharmacoepidemiology & Health Economics			Elective	
PHYS405	3	Radiation Biophysics			Elective	
PHYS410	3	Computational Physics			Elective	
PHYS534	3	Radiotherapy Physics I			Elective	
PHYS535	3	Radiotherapy Physics II			Elective	
PHYS536	3	Advanced Radiation Biophysics			Elective	
PHYS536	3	Advanced Radiation Biophysics			Elective	
PHYS540	3	Radiological Imaging			Elective	
PHYS541	3	Nuclear Medicine		Applied Science		
PHYS542	3	Nuclear Magnetic Resonance Imaging		Applied Science		
PHYS543	3	Biomedical Optics		Applied Science		

Course Code	Credit	Course Name	Life Science	Applied Science	Elective	Notes:
PHYS545	3	Anatomy, Physiology and Statistics for Medical Physicists	Life Science			
PHYS560	3	Physics and Engineering of Particle Acceleratots			Elective	
RHSC506A	3	Topics in Rehabilitation	Life Science			
RHSC506B	3	Topics in Neurotrauma	Life Science			
RHSC506C	3	Topics in Rehabilitation	Life Science			
RHSC514	3	Introduction to Neuroimaging	Life Science			
SPPH300	3	Working in International Health			Elective	
SPPH302	3	Topics in Health Informatics for Health/Life Sciences Students			Elective	
SPPH381D	3	Canadian Health Care Policy			Elective	
SPPH400	3	Statistics for Health Research			Elective	
SPPH481C	3	Special Topics in Population and Public Health - PRISON HEALTH			Elective	
SPPH481D	3	Special Topics in Population and Public Health - GLB HLTH POL&SYS			Elective	
STAT306	3	Relationship Data			Elective	
STAT540	3	Statistical Methods for High Dimensional Biology	Life Science	Applied Science		
STAT520A	1.5	Topics in Bayesian Analysis and Decision Theory			Elective	
STAT545A	1.5	Exploratory Data Analysis I			Elective	
STAT545B	1.5	Exploratory Data Analysis II			Elective	
WACH501	3	Advanced topics in women+'s and children's health	Life Science			