Alphabetical by course title)
*All courses and instructors are subject to change*

**Cancer Today**
(Biomedical and Molecular Science)

**Course Description**
Have you ever wondered what causes a normal cell to become cancerous? Or what current treatment is available? Join this course to learn about the disease that is affecting millions of people in North America. Through lectures and hands-on activities (including DNA modeling, reviewing real cancer cases, and cancer risk assessment), you will study what cancer is and how it is being treated today. If you are looking for in-depth discussions about genetic counseling, interviews with cancer survivors, and advice for career paths from clinical and basic science faculty, then this is the course for you!

**Instructor Biography**
Dr. Elliott has coordinated this popular course for ESU since 2004. He is a professor in the Department of Biomedical and Molecular Science at Queen’s University and is also a collaborator at the Queen’s University Cancer Research Institute. Instructors for this course are specially selected and supervised by Dr. Elliott.

---

**Conquer the Code**
(Computer Science, Programming)

**Course Description**
Have you ever wanted to create your own game? What about design your own website? Computer programming is a sought-after skill used for a wide range of applications, including game development, web design, and even in the medical field. In this course, you will learn programming skills by building webpages and coding in Python. You will also explore how computing is being used to solve real-world problems by touring Queen’s state-of-the-art Computer-Assisted Surgery Lab. From NBA star Chris Bosh, to supermodel Karlie Loss, everyone is learning how to code!

**Instructor Biography**
Mary — a first time instructor for ESU — has a background in computing with a specialization in biomedical computing. Mary has previously helped to design and run coding workshops for students as part of the Google IgniteCS program, as well as been a mentor for Coder Dojo, a coding program for children at the Kingston Frontenac Public Library.
Don’t overReact, Chemistry is Lots of Fun!
(Chemistry)
* this course is open only to Grade 9-10 students

Course Description
EXPLOSIONS – isn’t all that chemistry has to offer...Have you ever wondered, what chemistry really is? Become a chemist and see if you chempletely fall in love with the world of chemistry. This course aims to broaden your chemistry knowledge, apply it to the real world, and explore the many career opportunities chemistry has to offer. Through hands-on experiments, amusing demonstrations, and interesting discussions, you will apply new knowledge while working in a real university laboratory as well as interacting with other chemists. Explore and see if chemistry is the right path for you here at ESU!

Instructor Biography
Kate is returning for her second year of instructing for ESU. She holds a background in modern chemistry with a focus on molecular structure, physical chemistry, thermodynamics, organic chemistry, analytical chemistry, inorganic chemistry, and computational chemistry.

Empowered: Your Legal Rights
(Law, Sociology)

Course Description
Have you ever found yourself wondering “what are my rights in this situation?” or “are my rights being infringed upon?” Join us for a crash course on your rights and how to stand up for them. Learn about rights and responsibilities in the criminal context, employment and human rights, educational rights, and health/mental health rights. Put together your new set of skills and knowledge in culminating activities, including a mock trial! Remember – the strength of your voice, when you are confident and informed, is unparalleled.

Instructor Biography
Kathryn is returning once again to instruct for ESU. She earned her Law Degree at Queen’s University while focusing on students’ rights in education, mental health law, and tort reform.
**Engineering: Design, Makerspaces, and Innovation**

(Engineering)

**Course Description**

Are you interested in building, designing, and innovating? This course is designed to foster critical thinking, communication, collaboration, and creativity by helping you learn how to use digital technologies such as 3D printers, 3D scanners, laser cutters, robotics, Arduino, and more. You will learn about design thinking, digital technologies and how these technologies are used in engineering disciplines such as computer, electrical, and medical. Join us as we explore how engineering and technology is linked to innovations of the future.

**Instructor Biography**

Scott has been coordinating courses for ESU since 2014 and is currently the Outreach Coordinator for Connections: Queen’s Faculty of Engineering and Applied Science Educational Outreach Program. He holds a Master’s degree specializing in Engineering Education with a thesis on high school students’ perception of engineering. Instructors for this course are specially selected and supervised by Scott.

---

**Fitness, Sport, and Health: The Study of the Human Body in Motion**

(Kinesiology, Health Studies)

**Course Description**

Have you ever wondered how runners like Usain Bolt and Andre De Grasse became so fast? Or how Olympians like Clara Hughes and Christine Sinclair developed such strength and endurance? If you have a passion for sports and exercise, then this is the course for you! You will learn about the human body in motion by studying the effects of physical activity on health and performance, the physiological factors effecting body during movement, and important sport psychology concepts. Opportunities to visit various labs and learn more about exercise physiology, sport psychology, biomechanics and ergonomics, cardiovascular physiology, and health promotion, will turn your passion into a possible profession.

**Instructor Biography**

Madison is a first time instructor for ESU and is currently completing her Master’s Degree in Kinesiology at Queen’s University. In addition to working in multiple kinesiology labs at Queen’s (including cardiovascular, physiology, sport psychology and muscle physiology), Madison has also assisted with instructing undergraduate kinesiology courses.
Human Anatomy: Journey through the Human Body
(Biology, Anatomy)

Course Description
Do you want to get up close and personal with human anatomy? If yes, then this is the course for you! You will start by learning the five major systems of the body, including the musculoskeletal, cardiovascular, respiratory, nervous, and gastrointestinal. You will also get hands on experience working with cadaveric specimens and plastinated models, and have an exclusive opportunity to visit the state-of-the-art Anatomy Museum and Laboratory to explore the human body, inside and out! Most importantly, you will be exposed to a challenging and engaging learning environment, led by highly-regarded experts in the field of anatomy at Queen’s.

Instructor Biography
Lisa – a graduate from Queen’s University with a Master’s of Science in Physical Therapy – is joining us for her first year of instructing for ESU. She is currently working as a physiotherapist in private practice as well as a teaching assistant for two Anatomy courses at Queen’s.

Sahar is a first time instructor for ESU. She graduated from the Faculty of Medicine in Cairo University and was a Resident of Oncology in Egypt. Currently, Sahar is a Master’s of Science candidate at the Anatomical Science program at the Department of Biomedical Sciences at Queen’s University.

Pathology and Molecular Medicine
(Biomedical and Molecular Science)

Course Description
Have you ever wanted to solve your own diagnostic case or learn how to find your blood type? If yes, then this is the course for you! This course will provide you with a thorough introduction to the field of Pathology – the study of diseases and the structural and functional changes they cause. You will interact with graduate students, professors, and doctors as you learn about genetics, cancer, neuropathology, pharmacology, toxicology and even have the opportunity to discuss education and career options. You will extend your learning in the state-of-the-art Queen’s University Anatomy Museum and Clinical Simulation Centre.

Instructor Biography
Dr. Bowman is in her eighth year as course coordinator and holds a PhD in Pathology and Molecular Medicine. She is currently a Senior Scientist in the Clinical and Molecular Hemostasis Research Group at Queen’s University. Instructors for this course are specially selected and supervised by Dr. Bowman.
Psychology 101: The Human Brain and Behavioural Science  
(Psychology, Health Studies)

Course Description
Have you ever wondered why people do the things they do? Do you have an interest in the field of psychology and mental health? If so, this is the course for you! As you explore the science of psychology and experience first-hand a day in the life of a psychologist, you will learn about the anatomy of the brain, how each part of it contributes to how we function and behave as humans, and the role of psychologists as mental health service providers within our community. Together we will conduct real experiments, complete challenging puzzles, and engage in group activities to build essential skills and knowledge needed as a psychologist-in-training.

Instructor Biography
Brittany – a new addition to the ESU team – completed her Bachelor’s Degree in Psychology and Sociology at Queen’s University. She is currently assisting with instructing undergraduate courses at Queen’s.

The Blood, Guts, Heart, and Spine of Crafting Great Stories  
(Literature, Creative Writing)

Course Description
Do you dream of becoming a successful fiction writer like Stephen King, J.K. Rowling, or John Green? How about writing the screenplay for movies like Star Wars or The Avengers? This course will introduce you to techniques used by these famous writers. Regardless what medium you want to write for (novels, screenplays, graphic novels, etc.), you will discover how to stir readers' emotions and take them on a page-turning and meaningful journey. This course covers the complete creative process including how to find story ideas, create believable characters, structure an emotionally compelling plot, and develop an effective writing style. In a few short days, you will write an original story and be on your way to creating a full-length manuscript!

Instructor Biography
Glen has been a freelance writer since 1999 and has been instructing with ESU since 2013. He is the author of the award-winning middle-grade novel, Dancing on the Inside and currently teaches creative writing at St. Lawrence College.