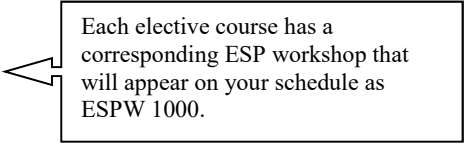# Course Descriptions
# Engineering Stream

The following are descriptions of the courses available to ESP students in the Engineering stream for the 2023-2024 academic year. Please read the descriptions carefully before selecting your course preferences on your *Course Selection Form*. Please note: All courses are subject to cancellation and/or change.

- All ESP students must register for one credit in a first-year seminar (see Section A below).
- All ESP students must register in two Elective Courses (see descriptions below in Section B)
  - Students registered in the Engineering stream have set electives; according to requirements for this program (see your *Course Selection Form*).
  - Each elective will be supported by an ESP Workshop. See the *Course Schedule* for times.

> Each elective course has a corresponding ESP workshop that will appear on your schedule as ESPW 1000.

Half-credit courses are marked with an asterisk (*) and are worth 0.5 credits and run during either the Fall or Winter semester.  Full-credit courses are worth 1.0 credits and run during the entire Fall/Winter session.

## Section A: First Year Seminars

**Selected Topic: Power of Persuasion**
**FYSM 1900 J (1.0 Credit) Fall/Win**
**Instructor: Jennifer Gilbert**

What do you think of when you hear the word 'argument'? People yelling at each other? Trolls online? It's true that arguments involve emotions, and those emotions can get out of hand. But that's not what makes something an argument.

A persuasive argument will always involve an appeal to emotions; however, at its core and argument consists of a claim. A claim is a position taken up by a speaker, which they then may attempt to advance and defend.

The arguments we are exposed to shape our opinions and beliefs, our social structures, and everyday decisions in our lives. Learning how to engage with arguments and how to disagree productively with others has many benefits, from assisting our own decisions about how to live and how to act, to broadening our understanding of the world and other people, and even - sometimes - changing our minds or changing the minds of others.

Understanding arguments critically is enhanced by understanding what arguments are, how to break them down, how they work, and what makes an argument persuasive. In this course, you will learn a toolkit for analyzing arguments, based on ancient and modern knowledge from the field of Rhetoric. We will:

- analyze written and spoken arguments, and also everyday visuals such as memes, ads, and videos
- identify what claim is being made and analyze what types of appeal are presented
- map out argument structure in order to look at the reasons underlying an argument's claim, as well as the warrant for making the claim in the first place, and the evidence – if any is provided – that supports the reasons and warrant
- map out rhetorical situations to assess power and communication dynamics
- work in teams to debate issues
- you will develop and present your own arguments, and give feedback to others on their arguments

The knowledge and skills you gain from this course can make you a better and more persuasive speaker and writer. Most importantly, you can become a more analytical and critical thinker in a world increasingly flooded by misinformation.

In-class activities include lectures, discussions, and games. Assignments and evaluation include weekly quizzes, writing papers that incorporate research, as well as working in teams and individually to research issues and present arguments to the class.

A bit about Jen: She is an experienced university instructor in Rhetoric/Writing Studies and in Arts-Based Teaching and Learning. She specializes in strengthening students' communications abilities through awareness and practice, using game-based, creative approaches – and good old-fashioned fun!

# Section B: Elective Courses

All elective courses listed below will be accompanied by a two hour/week ESP Workshop (this will appear on your schedule as ESPW 1000). Please see the *Class and Workshop Schedule* for day and time information; and read the **Student Guide** for a description of workshops.

**General Chemistry I (Fall)**
**CHEM 1001 A [0.5 credit]**
**Prof. David Brock**
This math-intensive course covers an introduction to solution chemistry, acids and bases, thermodynamics, and kinetics. Specialist course for students intending to take second year chemistry.
- Information on the course can be found on the Department of Chemistry website: https://carleton.ca/chemistry/current-students/undergraduate/#courseinfo
- Lectures/tutorials four hours a week, laboratory three hours every other week.

**General Chemistry II (Winter)**
**CHEM 1002 A [0.5 credit]**
**Prof. David Brock**
This math-intensive course covers introduction to periodicity, gas laws, equilibrium, bonding, electrochemistry, and organic chemistry. This is a specialist course for students intending to take second year chemistry.
- Information on the course can be found on the Department of Chemistry website: https://carleton.ca/chemistry/current-students/undergraduate/#courseinfo
- Lectures/tutorials four hours a week, laboratory three hours every other week.

**Calculus for Engineering or Physics (Fall)**
**MATH 1004 A [0.5 credit]**
**Prof. David Amundsen**
Limits. Differentiation of the elementary functions. Rules of differentiation. Inverse trigonometric functions. Applications of differentiation: max-min problems, curve sketching, approximations. Definite and indefinite integrals, techniques of integration. Applications to areas and volumes.
- An example of a course outline from Fall 2022: https://carleton.ca/math/wp-content/uploads/MATH-1004E-F22-1.pdf
    - Please note that this course outline is subject to change for the current academic year
- Lectures three hours a week, tutorial one hour a week.

**Linear Algebra for Engineering or Science (Winter)**
**MATH 1104 C [0.5 credit]**
**Prof. Saban Alaca**
Systems of linear equations. Matrix algebra. Determinants. Invertible matrix theorem. Cramer's rule. Vector space $R^n$; subspaces, bases. Eigenvalues, diagonalization. Linear transformations, kernel, range. Complex numbers (including De Moivre's theorem). Inner product spaces and orthogonality. Applications.
- An example of a course outline from Fall 2022: https://carleton.ca/math/wp-content/uploads/MATH-1104B-F22.pdf
    - Please note that this course outline is subject to change for the current academic year
- Lectures three hours a week, tutorial one hour a week.