Welcome to Queen’s Engineering

Marianna Kontopoulou, Associate Dean Academic

Aphra Rogers, Applied Science Program Lead
Agenda

1. Presentation: Everything you want to know about first year
2. Break
3. Student Q & A Session

Administrative matters

Washroom locations
Emergency exit locations
We are happy to answer questions throughout
We deliver outstanding engineering education and student support.

Our students develop broad technical and professional skills.

Our students have a positive impact in society and successful careers.

We foster a supportive, life-long community of engineers.

4 Pillars
Key Messages for incoming students

1. First year students have **a prescribed program**
2. Students will need to work hard and **ask for help when necessary.**
3. We have amazing **student advisors** to help students understand their program and the decisions that they need to make.
4. Check out the detailed information:
   http://my.engineering.queensu.ca/Current-Students
Keep checking your Queen’s Email!
Need to know terms and acronyms

• **SOLUS**: Provides you with the tools to manage all of your academic, financial, contact and admission details.
  - Use it to pay fees, view your schedule, add and drop courses (in upper years), choose discipline

• **onQ**: The Queen’s Learning management system.
  - Use it to check course content, stay on top of course materials, submit assignments, view your grades and for all course related activities

• **CEAB**: The Canadian Engineering Accreditation Board. All our Engineering programs are accredited by CEAB.
The Academic Year

**Fall Term:** September – December (12 weeks, Fall break week of October 10th)

**Winter Term:** January – April (12 weeks, Winter break week of February 20th)

**Summer Term:** May – July (online courses are available)

The Academic Year: September 2022-August 2023

**DID YOU KNOW?** Many students take more than 4 years to complete their degree (Academic accommodations, varsity, extenuating circumstances, needing time off)

➢ 6 Years is typically the maximum allowable.
Your degree, your way

- Pursue a Queen’s University Internship (QUIP) – 12 to 16 months
- Do a Dual Degree
- Choose a Certificate (Business, Law, Mining Technology, Data Analytics, Innovation and Entrepreneurship, Employment Relations)
- Explore International Exchanges
- Participate in Varsity teams/ other extracurriculars

Many opportunities:
- Design Teams
- Dunnin-Deshpande Queen's Innovation Centre programs
Two types of entry for Queen’s Engineering, leading to different programming

**Direct Entry Programs**
- Electrical and Computer Engineering Innovation Stream
- Mechatronics and Robotics Engineering

**Common First Year**
- Chemical Engineering
- Civil Engineering
- Computer Engineering
- Geological Engineering
- Engineering Physics

**Guaranteed Discipline Selection**
- Mining Engineering
- Electrical Engineering
- Mathematics & Engineering
- Mechanical & Materials Engineering
Program Selection

Late January: Evening orientation session for each of our 10 programs,
- Program structure, curriculum, careers, tours, guest speaker, etc.

Late February (after Reading week): Students choose a program.
- All programs are open provided students pass all of their first year courses and register by the deadline
- ECE-i students choose between Computer and Electrical Engineering, innovation stream
- Students in General Engineering choose between the 10 programs

- Discipline selection is open only during that period. Programs may be capped afterwards and transfers are not guaranteed.
Program requirements

All Canadian engineering programs are accredited by the Canadian Engineering Accreditation Board (CEAB)

Two sets of rules:

• Each student must take a minimum unit count in math, science, design, etc.
• All engineering graduates must demonstrate 12 attributes

Queen’s Engineering programs have been meticulously constructed so that students meet all of the engineering accreditation criteria in all programs
Program requirements

• Each student must take a minimum unit count in math, natural sciences, engineering sciences, engineering design, humanities and social sciences (complementary studies)

~ 50 courses in 4 years → ~6-7 courses per term

Programs are highly structured – courses have prerequisites

➢ Types of courses

• Core (first and upper years): Mandatory courses. All of the first year courses are core.

• Technical electives (upper years): Optional courses covering Engineering/Science topics

• Complementary studies (upper years): 3 courses (9 units) of courses chosen from Humanities/Social Sciences/Languages/Management etc.
CEAB Graduate Attributes

All engineering graduates must demonstrate 12 attributes

1. Knowledge base for engineering
2. Problem analysis (complex problems)
3. Engineering Design
4. Investigation – hands on, lab work
5. Engineering tools – Simulations, lab equipment
6. Individual and team work
7. Communications
8. Professionalism
9. Impact on society and environment
10. Ethics and equity
11. Economics and project management
12. Lifelong learning

Math, physics, chemistry, thermo, hydraulics, fluid dynamics, engineering science courses... - BUT engineers need to know much more

We have developed a sequence of courses over 4 years to develop these skills in our students:

Engineering Design and Practice Sequence (EDPS)

APSC101/102/103
APSC200
300, 400 level design....
First Year Courses (Core – ECEi and MRE have a few differences)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Name</th>
<th>Unit Count</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>APSC111</td>
<td>Physics I</td>
<td>3.3</td>
<td>Fall</td>
</tr>
<tr>
<td>APSC112</td>
<td>Physics II</td>
<td>3.3</td>
<td>Winter</td>
</tr>
<tr>
<td>APSC131</td>
<td>Chemistry and Materials</td>
<td>3.3</td>
<td>Fall</td>
</tr>
<tr>
<td>APSC132</td>
<td>Chemistry of Natural and Engineered Systems</td>
<td>3.3</td>
<td>Winter</td>
</tr>
<tr>
<td>APSC143</td>
<td>Intro to Computer Programming</td>
<td>3.3</td>
<td>Fall</td>
</tr>
<tr>
<td>APSC151</td>
<td>Earth Systems Engineering</td>
<td>3.3</td>
<td>Fall</td>
</tr>
<tr>
<td>APSC162</td>
<td>Engineering Graphics</td>
<td>2.5</td>
<td>Winter</td>
</tr>
<tr>
<td>APSC171</td>
<td>Calculus I</td>
<td>3.3</td>
<td>Fall</td>
</tr>
<tr>
<td>APSC172</td>
<td>Calculus II</td>
<td>3.3</td>
<td>Winter</td>
</tr>
<tr>
<td>APSC174</td>
<td>Introduction to Linear Algebra</td>
<td>3.3</td>
<td>Winter</td>
</tr>
<tr>
<td>APSC182</td>
<td>Applied Engineering Mechanics</td>
<td>1.7</td>
<td>Winter</td>
</tr>
<tr>
<td>APSC 199</td>
<td>English Proficiency for Engineers</td>
<td>0.2</td>
<td>F/W/S</td>
</tr>
<tr>
<td>APSC101</td>
<td>Engineering Design and Practice</td>
<td>3.5</td>
<td>Fall</td>
</tr>
<tr>
<td>APSC 102</td>
<td>Experimentation</td>
<td>2.0</td>
<td>Fall</td>
</tr>
<tr>
<td>APSC 103</td>
<td>Engineering Client-Based Design Project</td>
<td>3.5</td>
<td>Winter</td>
</tr>
</tbody>
</table>
First Year Sectioning and Timetables

~ 850 students in the first year class!

Sectioning: students are grouped into 21 sections
• 00-08, 19: 10 Sections of 60 students
• 10-18: 9 Sections of 20 students
• ECEi: 1 Section of ~40 students
• MRE: 1 Section of ~80 students

Most lectures and tutorials combine multiple sections:
e.g. Section 00 with 10, Section 01 with 11, etc.
Course Timetables

First year students are not required to add any courses although the university system will send an email to prompt them to make a selection. There is no need to do anything, students are enrolled in classes by the Faculty. Classes begin on September 6, 2022.

Yellow highlight shows lectures

Purple highlight shows tutorials, studios, labs

Engineering practice (under the umbrella of APSC 100) has 3 modules. Modules 1 (Studies – APSC 101) and 2 (Labs – APSC 102) run in the Fall term and Module 3 (Studies – APSC 103) runs in the Winter term.

Note: these schedules are a supplement to SOLUS – they contain some extra information, if anything contradicts a time or location that SOLUS shows, consider the SOLUS information correct.

Note 2: Classes normally end 10 minutes before you need to go to your next class giving you some time to travel across campus (eg. An 8:30am lecture will end at 9:20am, allowing you time to get to a 9:30am class)

<table>
<thead>
<tr>
<th>Section 00</th>
<th>Section 01</th>
<th>Section 02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 03</td>
<td>Section 04</td>
<td>Section 05</td>
</tr>
<tr>
<td>Section 06</td>
<td>Section 07</td>
<td>Section 08</td>
</tr>
<tr>
<td>Section 09</td>
<td>Section 10</td>
<td>Section 11</td>
</tr>
<tr>
<td>Section 12</td>
<td>Section 13</td>
<td>Section 14</td>
</tr>
<tr>
<td>Section 15</td>
<td>Section 16</td>
<td>Section 17</td>
</tr>
<tr>
<td>Section 18</td>
<td>Section 19</td>
<td></td>
</tr>
</tbody>
</table>
## Typical Schedule

<table>
<thead>
<tr>
<th>TIME</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30-9:30</td>
<td>APSC 143 LECT - ONLINE (2 hours)</td>
<td>APSC 131 LECT - STIRLING AUD</td>
<td></td>
<td></td>
<td>APSC 151 LECT - ELLIS AUD</td>
</tr>
<tr>
<td>9:30-10:30</td>
<td></td>
<td>APSC 143 LAB - MITCHELL 215 (2 hours)</td>
<td>APSC 151 LECT - ELLIS AUD</td>
<td>APSC 100 STD- MITCHELL 215 (2 hours)</td>
<td>APSC 131 LECT - STIRLING AUD</td>
</tr>
<tr>
<td>10:30-11:30</td>
<td>APSC 151 LECT - ELLIS AUD</td>
<td></td>
<td>APSC 131 LECT - STIRLING AUD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:30-12:30</td>
<td></td>
<td></td>
<td>APSC 111 TUT - CHERNOFF 213 or STIRLING 414</td>
<td></td>
<td>APSC 100 LAB - STIRLING 406 or 407 (3 hours)</td>
</tr>
<tr>
<td>12:30-1:30</td>
<td>APSC 131 TUT - CHERNOFF 211</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1:30-2:30</td>
<td>APSC 171 TUT - STIRLING 414</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2:30-3:30</td>
<td>APSC 171 LECT - STIRLING AUD</td>
<td>APSC 151 LAB - MILLER 102 or 106 (2 hours every other week starting week 1)</td>
<td></td>
<td>APSC 111 LECT - STIRLING AUD</td>
<td></td>
</tr>
<tr>
<td>3:30-4:30</td>
<td></td>
<td></td>
<td>APSC 171 LDI - CHERNOFF 117</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4:30-5:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>APSC 111 LECT - STIRLING AUD</td>
</tr>
<tr>
<td>5:30-6:30</td>
<td>APSC 111 LECT - STIRLING AUD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6:30-7:30</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>

*SECTION 00 – FALL 2022*
Grade Point Average (GPA) System

<table>
<thead>
<tr>
<th>Grade</th>
<th>GP</th>
<th>% Equiv.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.3</td>
<td>90-100</td>
</tr>
<tr>
<td>A</td>
<td>4.0</td>
<td>85-89</td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
<td>80-84</td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
<td>77-79</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
<td>73-76</td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
<td>70-72</td>
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<tr>
<td>C+</td>
<td>2.3</td>
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<td>C</td>
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<td>C-</td>
<td>1.7</td>
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<td>D+</td>
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<tr>
<td>D</td>
<td>1.0</td>
<td>53-56</td>
</tr>
<tr>
<td>D-</td>
<td>0.7</td>
<td>50-52</td>
</tr>
<tr>
<td>F</td>
<td>0.0</td>
<td>&lt;50</td>
</tr>
</tbody>
</table>

• **Term GPA:** GPA achieved in a term
• **Cumulative GPA:** Includes all courses you have done at Queen’s.

EVERY MAY WE LOOK AT EACH STUDENT’S TERM AND CUMULATIVE GPA:

• GPA of 3.5 (~80%) and Above:
  – Dean’s list
  – 1st class honours at graduation (cumulative GPA)
  – GPA requirement to keep entrance scholarships

• **Cumulative GPA** of 1.6 (~60%):
  Need this to graduate. If you fall below this you are on probation for the following year.

• **Two terms with GPA < 0.7 (~50%)**:
  Required to withdraw.
Incoming High School Average Distribution

<table>
<thead>
<tr>
<th>HS Average</th>
<th>&lt;50</th>
<th>50-54</th>
<th>55-59</th>
<th>60-64</th>
<th>65-69</th>
<th>70-74</th>
<th>75-79</th>
<th>80-84</th>
<th>85-89</th>
<th>90-94</th>
<th>95-100</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Students</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>258</td>
<td>232</td>
<td>35</td>
</tr>
</tbody>
</table>

High School Average
What Do Engineers Do?

... Compared to University
### Average Working Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Contact (hrs/wk)</th>
<th>Outside (hrs/wk)</th>
<th>Total (hrs/wk)</th>
</tr>
</thead>
<tbody>
<tr>
<td>APSC-101</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>APSC-102</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>APSC-111</td>
<td>4</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>APSC-131</td>
<td>4</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>APSC-151</td>
<td>5</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>APSC-143</td>
<td>2</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>APSC-171</td>
<td>3</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>TOTAL</td>
<td>27</td>
<td>24</td>
<td>51</td>
</tr>
</tbody>
</table>

Go to class to stay on top of course material! Make sure to plan to study outside of class time.
As reported by students (2019)

**Total Hours Outside Class, Reported in Week 8**

- **Recommended**

**What Do You Feel About the Pace? (Week 8)**

- Great!
- Hectic
- Struggling
- Really worried
Our focus on Student Success
All students admitted to Queen’s Engineering are academically capable of graduating (or we wouldn’t have given them the offer).

**Student supports**

- Dedicated academic advisors
- Dedicated Applied Science Program Lead
- Embedded student wellness counsellor, wellness navigator
- Time management session
- Early intervention and supports
  - group tutorials
  - one-on-one academic and personal counselling sessions
  - peer connection/Bounce Back
- Extended Program
Extended Program (Section 900, or “J-Section”)

If a student’s fall term GPA < 1.60 OR they failed physics, math, or chemistry
We contact them and strongly recommend the Extended Program.

Extended Program: Winter and Summer Terms
Week 1: Signup, move out of regular section
Week 2-6: Review APSC 111 (Physics), APSC 131(Chemistry), and APSC 171(Calculus)
Reading Week (mid Feb) – Rewrite fall term exams to replace fall marks in these courses
Week 7: Begin “normal” 12 week winter term
Break during the April final exam period
Complete the final 6 weeks of winter term after the April final exam period (summer session)
Mid June Write J-Section winter term final exam (also used as rewrite exams for regular sections)

Extra fees (~$500 per course) for the spring/summer session, but costs less than repeating first year!

J-Section students are indistinguishable from their peers in upper years
Academic accommodations

Students who have a disability, and/or had accommodations or an IEP in high school should consider requesting academic accommodations

➢ Contact Queen's Student Accessibility Services (QSAS)
   Email: qsas.intake@queensu.ca

➢ The office is open all summer and we suggest making contact prior to September

QSAS will confidentially review all of your supporting documentation and issue your Letter of Accommodation.

VENTUS is an online portal that connects students, instructors, Queen's Student Accessibility Services, and other support services in the process to request, assess, and implement academic accommodations.

Need help with extenuating circumstances/absences or accommodations?
➢ Your Dedicated Engineering contact:
   Catherine Gurnsey, Program advisor accommodations & considerations,
   engineering.aac@queensu.ca
Make wellness a priority!

- Be active at least 150 minutes a week
- Get involved in activities you like to do
- Stay connected to friends, family & important others
- Sleep 7-9 hours a night
- Be proactive in accessing help or supports
- Schedule time for fun and relaxation
- Laugh!
- Make self-care a priority
- Be kind to yourself! Excellence does not require perfection
- Eat fruits & veggies every day
- Make self-care a priority
Reaching Out for Support is the Key to Success

Check out the EngWell Hub!

https://engineering.queensu.ca/engwell-hub/index.html
Managing Stress is Managing Wellness

- Boreout
- Comfort
- Optimal performance
- Strain
- Burnout

High
Low
Performance
Pressure

Zone of delusion
Of course it's hard. It's supposed to be hard. If it were easy everybody would do it. **HARD IS WHAT MAKES IT GREAT.**

*Quote From “A League of Their Own”*
What needs to be done this summer?
What NOW?  Incoming Student Survey (open now)

Brief questions about:

• Proficiency with computer programming, writing, and project management
• Weaknesses in High School Preparation (e.g. due to strikes, remote learning, extended absences from school, etc.)

The data from this is used in planning for September.
Incoming expectations

Students need to be fluent in Microsoft Word and Excel:

• Microsoft Word: Using tables, references, citations, captions, styles, section headings, equations, simple drawings, etc.
• Microsoft Excel: Using equations, plots, regression, etc.

A Microsoft Word/Excel Assignment has been sent out already – to be completed before term starts! (Don’t leave it until frosh week!)

http://engineering.queensu.ca/Current-Students/First-Year-Studies/excel-word-video-tutorial.html
QEng Prep - Get Prepared for the Fall!

Get ready with our free online QEng Prep Program, designed to help you build your skills and confidence as you join the Queen’s Engineering community.

Find out what you need to know in mathematics, physics, chemistry, and programming (NEW!) – and take advantage of our self-guided modules and resources to prepare you for success!

https://engineering.queensu.ca/Current-Students/First-Year-Studies/QEng-Prep.html
IB or AP credits

IB and AP courses taken in high school may technically exempt students from some first year fall term courses.

WE STRONGLY RECOMMEND to do these “exempted” courses anyway. They provide a good review, and ensure that students have the material fresh in their minds when they do the winter term follow-on course.
Computers and software: See first year studies page on Computer Information

Key points:

- Laptops are critical
- Macs can’t run all software
- Software: MS Office, other specialized software, (available for free)

Computer Information

Computers are essential tools for an engineering education, just as they are in the engineering workplace. They are used extensively for modeling, design, and communicating engineering work. Course resources are often distributed through websites and assignments are often submitted electronically. Internet access is needed for course registration, checking marks, and email communications with instructors and peers (all students must use their Queen’s email account for communications with the university). Students frequently work collaboratively on their laptops in the ILC group rooms.

As a result, we strongly recommend that each student have a computer, and that each student sign up for high speed Internet access from their off-campus residence. Students in Queen’s residences may signup for ResNet, and high-speed access in the Kingston area is available through service providers. The Queen’s WiFi network covers most of the campus. We also provide several clusters of computers on campus for those who choose to not purchase a computer.

Hardware

We recommend that students bring laptops if possible. Laptops have the advantages of portability and smaller space requirement, and are often used for collaborative work and in tutorials. If you already own a laptop, and it was a mid-range model in the past couple of years, you will probably have no problem using it in our program. If you are buying a new laptop, any mid-range model (generally about $600 or more) should suffice. Low-end netbooks are not a good idea. Some things to consider in buying a laptop:

- We suggest a PC running Windows 10 or a Mac running a recent version of MacOS. For those interested in bringing an Apple MacBook laptop, please see Windows vs. Mac below.
Orientation Week

• Students meet their peers, make friends, and learn more about Queen’s Engineering in a fun environment.
• Up to 8 upper year student leaders are in charge of each group of ~25 new students.
• All events are signed off by the Dean, and overseen by the Senate Orientation Review Board (SORB) and AMS constables
• Engineering orientation week is completely optional – you don’t have to sign up for it and you can drop out at any time.

Schedule

Sept 3: Residence move-in day
Sept 4,5,10,11: Faculty orientation
Sept 6-9: First week of classes
Questions?

engineering.first.year@queensu.ca
engineering.queensu.ca