In this guide, you will find information about:

- University Requirements
- First-Year Requirements
- Major in Neuroscience (120-credit hour)
- Double-Major with Neuroscience
- Honours in Neuroscience
- Combined Honours in Neuroscience
- Major in Neuroscience (90-credit hour)
- Minor in Neuroscience
- Certificates
University Requirements

**General Degree Requirements**
The University mandates that students in a BA or BSc program must meet specific requirements to complete their degree. In addition to degree requirements, each program (e.g., Neuroscience) has a set of requirements necessary to complete the program. It is important to know both the degree and program requirements to ensure successful completion of a degree. For a full list of University requirements, please check the Academic Calendar.

**Subject Groupings**
Course offerings within the College of Arts and Science are placed into three subject groupings: (1) Languages and Humanities, (2) Social Sciences, and (3) Life and Physical Sciences. All BA and BSc programs must include a minimum of 6-credit hours from each of the three subject groupings.

**Writing Course Requirements**
An approved writing course or set of courses is required for all BA (6-credit hours) and BSc (6-credit hours) degrees. It is recommended that students complete the writing requirement early in their programs, preferably in their first year of study.

**Math Requirements (BSc)**
A minimum of 6-credit hours in mathematics or statistics are required for all BSc programs. See Academic Calendar for list of approved courses.

**Language Requirements (BA)**
BA students are required to obtain 6-credit hours in a language course or set of courses. See Academic Calendar for list of approved courses.

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**Pro Tip:**
Use the **Degree Audit Reporting System (DARS)** on DalOnline, to ensure you’re on track for graduation. DARS will show you all the requirements you need for your degree; identifying those you’ve met and those you have yet to complete.
First-Year Requirements

All Neuroscience programs (e.g., BSc, Honours, Double-Major, etc.) have the same program requirements for the first-year. Remember to check the Academic Calendar for University requirements for all BA and BSc degrees.

1000-level Program Requirements

- Introduction to Psychology I (PSYO1011 or 1031)*
- Introduction to Psychology II (PSYO1012 or 1032)*
- Biology I (BIOL1010 or 1020)*
- Biology II (BIOL1011 or 1021)*
- Chemistry I (CHEM1011)
- Chemistry II (CHEM1012)
- MATH1215 (recommended) or MATH1000
- Three (3) additional credit hours in Math or Statistics (STAT1060 recommended)
- Note: the Dalhousie Integrated Science Program (DISP) is considered equivalent to all of the above (SCIE1505X/Y)

* Final grade of B- or better is required in each of these four courses

Pro Tip:
We recommend students declare their major in the early winter (Jan-Feb) of their first year. Head to DalOnline to easily declare your major and update it at any point throughout your degree.
Major in Neuroscience (120-credit hour)

For 1000-level program requirements, see page 2. For all other University degree requirements, see the current Academic Calendar.

2000-level Program Requirements

- NESC2000 – Methods in Experimental Psychology & Neuroscience
- NESC2470 – Systems Neuroscience (or equivalent)
- NESC2570 – Cellular Neuroscience
- PSYO2501 – Statistical Methods (recommended to be taken concurrently with NESC2000)
- BIOL2020 – Cell Biology
- Additional 6-credit hours selected from: NESC2130, NESC2140, NESC2150, NESC2160, BIOC2300, BIOL2030, PHYC2250

3000/4000-level Program Requirements

- Two lab classes (6-credit hours), selected from: NESC 3044, 3051, 3137, 3161, 3165, 3370, 3371, 3440, 3775
- Two classes (6-credit hours), selected from: NESC 3043, 3052, 3131, 3132, 3133, 3134, 3162, 3165, 3170, 3180, 3190, 3227, 3237, 3260, 3264, 3270, 3670, 3770, 3790, 3970, PHYL3420, PHAC3001, PHAC4001
- Additional 12-credit hours of 3000/4000-level Neuroscience courses (includes BIOL3020, PATH4100, PHYL3420, PHAC3001 & 4001)

Pro Tip:
Look ahead to 3rd and 4th year courses to see what pre-requisites you may need, use that info to help you choose your 2nd year classes.
Double-Major in Neuroscience (120-credit hour)

Students may take a degree that combines a Major in Neuroscience with another subject, such as Biochemistry or Biology. Students cannot take Psychology as their other subject. If electing to complete a Double-Major, students must select one subject as the primary and one as the secondary. Requirements for the 3000/4000-level differ depending on whether Neuroscience is selected as the primary or secondary subject.

2000-level Program Requirements (Primary or Secondary)
- NESC2000 – Methods in Experimental Psychology & Neuroscience
- NESC2470 – Systems Neuroscience (or equivalent)
- NESC2570 – Cellular Neuroscience
- PSYO2501 – Statistical Methods
- BIOL2020 – Cell Biology*

3000/4000-level Program Requirements (Primary)
- Two lab classes (6-credit hours), selected from:
  NESC 3044, 3051, 3137, 3161, 3165, 3370, 3371, 3440, 3775
- Two classes (6-credit hours), selected from:
  NESC 3043, 3052, 3131, 3132, 3133, 3134, 3162, 3165, 3170, 3180, 3190, 3227, 3237, 3260, 3264, 3270, 3670, 3770, 3790, 3970, BIOL3020, PHYL3420, PHAC3001, PHAC4001
- Additional 6-credit hours of 3000/4000-level Neuroscience courses

3000/4000-level Program Requirements (Secondary)
- Two lab classes (6-credit hours), selected from:
  NESC 3044, 3051, 3137, 3161, 3165, 3370, 3371, 3440, 3775
- Additional 12-credit hours of 3000/4000-level Neuroscience courses (includes BIOL3020, PATH4100, PHYL3420, PHAC3001 & 4001)

Pro Tip:
If you’re passionate about two topics and can’t decide, a double-major might be the option for you! But don’t forget, you can also minor in a subject – an option that is more flexible for scheduling.

*If primary or secondary degree also requires BIOL2020, students must take an additional 2000-level NESC credit
Honours in Neuroscience (120-credit hour)

Admission to the Honours program requires the approval of both the Department and the Registrar. Typically, students apply between January-March of their 3rd-year (after fall grades have been released).

Requirements for admission:
- Grade of B+ (or higher) in NESC2000
- Average of A- (or higher) in the last six (6) completed NESC courses (If admission is delayed until the end of 3rd-year or later, an average of A- (or higher) in the last nine (9) completed NESC courses is required)
- Confirmed supervisor

2000-level Program Requirements
- Identical to 120-credit hour Major in Neuroscience (see page 3)

3000-level Program Requirements
- PSYO3502 – Statistical Methods II (prerequisite for Honours)
- Two lab classes (6-credit hours), selected from:
  - NESC 3044, 3051, 3137, 3161, 3165, 3370, 3371, 3440, 3775
- Two classes (6-credit hours), selected from:
  - NESC 3043, 3052, 3131, 3132, 3133, 3134, 3162, 3165, 3170, 3180, 3190, 3227, 3237, 3260, 3264, 3270, 3670, 3770, 3790, 3970, BIOL3020, PHAC3001, PHYL3420

4000-level Program Requirements
- NESC4501/4502 – Honours Thesis (full year)
- Two seminar classes (6-credit hours), selected from:
  - NESC4000, 4007, 4008, 4050, 4070, 4130, 4140, 4160, 4170, 4177, 4185, 4230, 4374, 4376, 4587, 4670, 4740
- Additional 6-credit hours of 3000/4000-level Neuroscience courses (includes BIOL3020, PATH4100, PHYL3420, PHAC3001 & 4001)

Important Note
- University policy stipulates that Honours students must receive a grade of C or better in all program-related courses

Pro Tip:
If you’re interested in pursuing an Honours degree, you may want to gain hands-on research experience in your 3rd year, by completing an Independent Research Project (NESC3100/3101 or 3001).
Combined Honours in Neuroscience

Students may elect to complete a Combined Honours, combining Neuroscience with another subject. **Departmental requirements for admission are identical to those for an Honours program** (see page 5). For a full list of University requirements for a Combined Honours degree, please see the Academic Calendar. If electing to complete a Combined Honours, students must select one subject as the primary and one as the secondary*. Requirements differ depending on whether Neuroscience is selected as the primary or secondary subject.

**2000-level Program Requirements** (Primary)
- NESC2000 – Methods in Experimental Psych & Neuro *(B+ or higher)*
- NESC2470 – Systems Neuroscience
- NESC2570 – Cellular Neuroscience
- PSYO2501 – Statistical Methods
- BIOL2020 – Cell Biology**
- One selection (3-credit hours) from: NESC2130, NESC2140, NESC2150, NESC2160, BIOC2300, BIOL2030, PHYC2250

**3000-level Program Requirements** (Primary)
- PSYO3502 – Statistical Methods II *(prerequisite for Honours)*
- Two lab classes (6-credit hours), selected from:
  - NESC 3044, 3051, 3137, 3161, 3165, 3370, 3371, 3440, 3775
- Additional 3-credit hours selected from:
  - NESC 3043, 3052, 3131, 3132, 3133, 3134, 3162, 3165, 3170, 3180, 3190, 3227, 3237, 3260, 3264, 3270, 3670, 3770, 3790, 3970, BIOL3020, PHAC3001, PHYL3420

**4000-level Program Requirements** (Primary)
- Identical to Honours in Neuroscience (see page 5)

**2000-level Program Requirements** (Secondary)
- If Neuroscience is the Secondary subject, students are only required to take the core 2nd-year courses (NESC2000, 2470, 2570, PSYO2501, BIOL2020)

**3000-level Program Requirements** (Secondary)
- Two lab classes (6-credit hours), selected from:
  - NESC 3044, 3051, 3137, 3161, 3165, 3370, 3371, 3440, 3775
- Additional 12-credit hours of 3000/4000-level Neuroscience courses

* Students cannot take Psychology as their other subject.

**If primary or secondary degree also required BIOL2020, students must take additional 2000-lvl NESC credit**
Minor in Neuroscience

Students majoring in a subject other than Neuroscience (with the exception of Psychology) may choose to complete a minor in Neuroscience. **To complete a minor, students must complete 18-credit hours, above the 1000-level**, selected from: NESC2130, 2140, 2150, 2160, BIOC2300, BIOL2020, BIOL2030, PHYC2250

**Note**: NESC2000 & 2470 are restricted to majors only; however, **in the event that a student has completed these courses and switches from a major to a minor, these credits can be used to fulfill the requirements of the minor.**

Certificates (Additional to Program)

**Animal Behaviour**

The Animal Behaviour certificate is a collaborative effort between the Biology and Neuroscience/Psychology departments. Completion of the certificate will be noted at convocation and shown on a student’s transcript. Students should enroll in the program in their 3rd year of studies. To enroll, declare the certificate through DalOnline and notify the certificate coordinator. Students must receive a grade of B- or higher in all courses counting towards their certificate.

**Mandatory Courses**

- NESC2160 – Animal Behaviour
- PSYO2501 – Statistical Methods I (*or STAT2080*)
- NESC3162 – Advanced Animal Behaviour (*or BIOL3062*)
- NESC3161 – Measuring Behaviour (*or NESC3165 or BIOL3630*)
- 3-credit hours of approved independent research

**Selectives**

Choose additional 12-credit hours from the following (*6 must be at the 3000-level or above; 3-credit hours of independent research can count towards this total*):

**2000-level**

ANSC2003, NESC2140, NESC2470

**3000-level**

BIOL3062, BIOL3080, BIOL3327, BIOL3622, BIOL3626, BIOL3628, BIOL3640, BIOL3632, MARI3090, NESC3001, NESC3101/3102, NESC3043, NESC3044, NESC3161, NESC3162, NESC3170, NESC3180, NESC3670

**4000-level**

BIOL4323, BIOL4800, BIOL4806, MARI4090, NESC4160
Certificates (Additional to Program)

Neurotechnology Innovation
Neurotechnology is an area of research and application involving technologies that measure and/or modulate brain function. Technologies include hardware, software, and drugs, and have applications in clinical diagnosis and treatment, health promotion and maintenance (including cognitive health), entertainment, and forensics. The undergraduate certificate in Neurotechnology Innovation is designed to provide foundational knowledge in this multi-disciplinary area. The certificate will also provide an understanding of how neurotechnologies can be translated into applications that are available to patients and consumers - through training in innovation, design, and commercialization.

Students must complete at least 18-credit hours of course work and receive a grade of B- or higher in all courses counting towards their certificate.

Mandatory Courses
- CSCI1105 – Introduction to Programming (or CSCI1110, or CSCI2202, or CSCI2203, or CSCI1100, or PHYC2050)
- NESC2470 – Systems Neuroscience (or equivalent)
- SCIE4701/4702 – Science and Technology Innovation, Commercialization, and Entrepreneurship I and II

Selectives
In addition to the mandatory courses listed above, students must complete at least 3-credit hours from each of the two categories below:

Neuroscience/Neurotechnology
PHYC2250, NESC3137, NESC3227, NESC3237, NESC4070, NESC4177, NESC4185, PHAC3001

Computer Science/Informatics
CSCI1107, CSCI1108, CSCI1110*, CSCI1120, CSCI2110, CSCI2134, CSCI2141, CSCI2202*, CSCI2203*, PHYC2050
*if not used to fulfill mandatory course requirements

Pro Tip:
Although students often enroll in certificate programs in their 3rd or 4th year, it’s a good idea to think about these in your 2nd year to ensure you’ve completed any necessary 2000-level courses.
Required Courses (Visual Guide)

The majority of our students tend to complete either the Major in Neuroscience (120-credit hour) or the Honours in Neuroscience program. Below is a visual representation of the required courses for both programs.

**Year 1**

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<td>CHEM 1011</td>
<td>MATH 1215 *</td>
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* Or equivalent

**Year 2**

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<td>PSYO 2501</td>
<td>NESC 2570</td>
<td>2000-lvl NESC Elective</td>
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<tr>
<td>NESC 2470</td>
<td>BIOL 2020</td>
<td>2000-lvl NESC Elective</td>
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1Selected from: NESC2230, 2140, 2150, 2160, BIOC2300, BIOL2030, or PHYC2250

**Years 3 & 4 (120-credit hour major)**

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<td>3000-lvl NESC LAB Elective</td>
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2Selected from: NESC3044, 3051, 3137, 3161, 3165, 3370, 3371, 3440, 3775
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**Years 3 & 4 (Honours)**

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<td>PSYO 3502 (3rd yr)</td>
<td>3000-lvl NESC LAB</td>
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<td>NESC 4501</td>
<td>NESC 4502</td>
<td>4000-lvl NESC Seminar</td>
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6Selected from: NESC4000, 4007, 4050, 4070, 4130, 4140, 4160, 4170, 4177, 4185, 4230, 4374, 4376, 4587, 4670, 4740, PHAC4001
# My Plan

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## Notes:

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Who do I speak to about...?

- General degree (e.g., BA, BSc, etc.) requirements?
  - Academic Advising ([dal.ca/advising](https://dal.ca/advising))

- Program requirements (e.g., Major, minor, etc.)?
  - Faculty Advisor ([dal.ca/psychandneuro](https://dal.ca/psychandneuro))

- Courses required to graduate?
  - Consult the Degree Audit Report System (DARS) through DalOnline and/or speak to an advisor ([dalonline.dal.ca](https://dalonline.dal.ca))

- Class offerings?
  - Consult the Academic Calendar ([academiccalendar.dal.ca](https://academiccalendar.dal.ca)), speak to an advisor, or seek advice from other students (e.g., Undergraduate Neuroscience Society)

- Getting more involved?
  - Check out all our resources posted on our departmental website: [dal.ca/psychandneuro](https://dal.ca/psychandneuro)

**Disclaimer:** This guidebook is intended to help clarify our program requirements as outlined in the Academic Calendar. Students should always check the Calendar for additional details and information. In the event of disagreement between this document and the Academic Calendar, the Registrar's Office will ALWAYS defer to the latter.