Welcome to the First-Year Physics Students at Carleton!

Physics Department

www.physics.carleton.ca

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Welcome Academic Orientation 2025

Orientation Department of Physics

- Video from Dean of Faculty of Science
- Your Physics Society is here for you!
- Welcome to the Carleton Physics Programs
- Contacts
- Registration Advice
- Program and Course Issues
- People

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Welcome Video Dean of Science

https://www.youtube.com/watch?v=gZQ5Jb-vMRE

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Welcome Video Carleton Science Student Society

https://www.youtube.com/watch?v=x2FPyrmaXBU

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Physics Society is here for YOU!!!

https://www.cusaclubs.ca/club/carleton-university-physics-society/

Welcome to Carleton Physics Programs

- B.Sc. Honour
  - Applied Physics
  - Physics – Experimental
  - Physics – Theory
  - Physics – Astrophysics
  - Biology and Physics – Combined
  - Chemistry and Physics – Combined
  - Mathematics and Physics - Double
- B. Eng.
  - Engineering Physics
- B.Sc. Major in Physics
- B.Sc. in Physics (15 credits)
- Minor in Physics

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People to know

- **Associate Chair for Undergraduate Studies:**
  - advise, orientation, career, course description

Prof. Alain Bellerive

undergrad-advisor@physics.carleton.ca

Herzberg 3316

- **Undergraduate Program Administrator:**
  - audit, course override, scheduling, equivalence

Ms. Joanne Martin

joanne_martin@carleton.ca

520-2600 x 1023

Herzberg 3302

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People to know

- Chair:
  - Prof. Kevin Graham
    physchair@physics.carleton.ca
  - 520-2600 x 4371
  - Herzberg 3322

- Physics Society (official Carleton Physics Club):
  - Claudia Saunders (president)
  - physsoc@physics.carleton.ca

https://www.cusaclubs.ca/club/carleton-university-physics-society/

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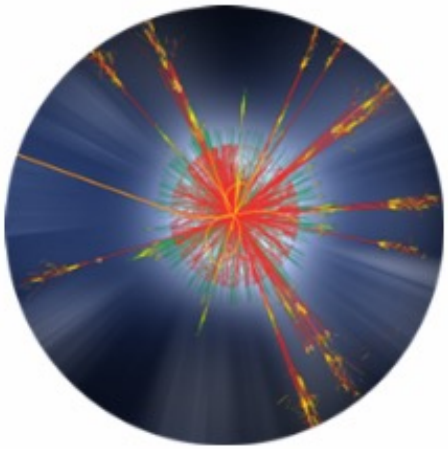
Research at Carleton



Particle Physics

Carleton's experimental physicists are involved in a number of exciting large-scale high-profile projects.

Research Groups

- ATLAS - A Toroidal LHC ApparatuS
- ILC - International Linear Collider
- The Dark Matter Experiment with Argon Pulse shape discrimination Group (DEAP)
- The Enriched Xenon Observatory Group (EXO)
- Theoretical Particle Physics Group

Medical Physics

Medical Physics research involves the application of physical principles to matters of human health.

- OMPI - The Ottawa Medical Physics Institute
- CLRP - Carleton Laboratory for Radiotherapy Physics
- L^2AMPE - Laboratory for Laser-Assisted Medical Physics and Engineering
- Functional Neuroimaging Physics Laboratory

Registration Advice: Physics courses

By default, You should be registered in

PHYS 1001/1002

PHYS 1001: Fall

PHYS 1002: Winter

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- No Grade 12 Calculus?

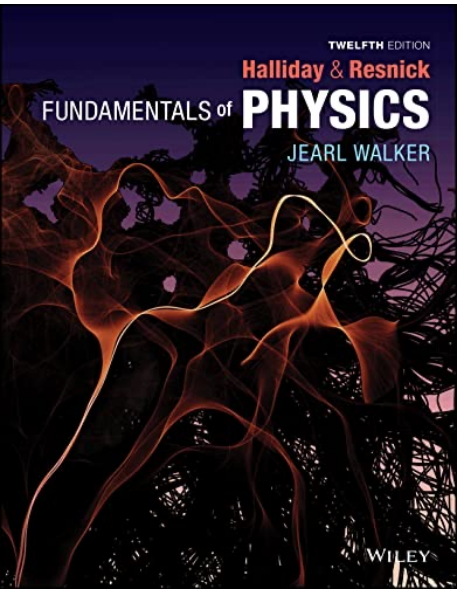
  Register in PHYS 1007 + PHYS 1008

  (but you have to get a B- or better to continue in Physics)

  If you get B- in PHYS 1007 in the fall

  You can switch to PHYS 1002 in the winter

PHYS1001



Book: At the Carleton book store

- Halliday Resnick for ***PHYS1001/1002*** (textbook):
- **Fundamentals of Physics, 12th Edition, Halliday, Resnick & Walker, John Wiley & Sons Canada Ltd.**

- Vol 1 for 1001 and Vol 2 for 1002.

Lab Material: All labs will be in-person (here!)

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Instructors: PHYS 1001 Prof. Jesse Heilman

PHYS 1002 Prof. Sangeeta Murugkar

More Registration Advice: Math courses

For all programs:

You should also be registered in

- MATH 1004(fall), MATH 1005 (winter) and MATH 1104 (fall or winter)

(except those in Math-Phys program need to take MATH 1052, 1152 and 1800)

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More Registration Advice: Science Elective

- Most programs require 1 credit with a laboratory component in BIOL or CHEM or ERTH. This is the Science elective and it is required for all students in Science during their FIRST year
- BIOL 1103/1104
- CHEM 1001/1002

(or CHEM 1011/1012 in Chem/Phys)

- ERTH 1002/2312

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More Registration Advice: Computer courses

- Most physics programs require COMP 1005.

Default: COMP 1005, 1006, 2401 (suggested)

COMP1005 is required for PHYS2801 (2nd year)

The ECOR options present in many of the program calendar descriptions don't exist anymore.

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Program and Course issues

First Year (an example) = basic rule 10 courses

- Physics: PHYS 1001 and 1002 ***
- Mathematics: MATH 1004, 1005, and 1104
- Computer Science: COMP 1005/1006
- Experimental Science: either
  - 1.0 credit from CHEM 1001 and 1002 or CHEM1011 and 1012
  - 1.0 credit from BIOL 1103 and 1104
  - 1.0 credit from ERTH 1002 and 2312
- ISAP 1000 or 0.5 approved course outside science or engineering
- 0.5 approved approved course outside science or engineering (if needed)

Summary: 10 courses or 5.0 credits per year: five course per term

TOTAL: 20.0 credits per degree

[Math/Phys 21.5 credits – require some term overload]

Program and Course issues

There is some freedom in how you organize your schedule. For example, you might decide to take less than 5 courses per term.

- COOP students needs to manage schedule
- PHYS and MATH courses are the first priority
  - Due to the pre-requisite structure.
- Many courses are offered also in summer:
  - First year MATH
  - First year BIOL, CHEM, ERTH, COMP
  - PHYS:1007/1008/1004/(3606 maybe)
  - Many Arts , Social science & Business courses

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Important Dates (2025)

- The pre-requisite structure make the programs highly constrained
  - Failure to take the appropriate pre-requisite can delay your degree.
- Important dates to remember:
  - Classes start tomorrow (September 3, 2025 – tomorrow!)
  - Last day to register in a new course or to make course changes is **Tuesday September 16, 2025**
  - Last day to withdraw from fall term and fall/winter courses with a full fee adjustment: **Tuesday September 30, 2025**
    - **Prerequisites are a factor in deciding to drop courses**
  - Last day for academic withdrawal from fall term courses is **November 15, 2025**

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Welcome to Carleton Physics Programs

- **Calendar** has all the information you need

BUT

- Calendar lists required courses but does not show **simply** the required pattern
- **Prerequisite** structure is extremely important
  - Course descriptions in the calendar give prerequisites
  - **Department** website shows the pattern under the link

"Courses to Take Year by Year"
https://physics.carleton.ca/current-students/undergraduate/courses-year-year

- **Consult your Department**
  - Associate Chair for Undergraduate Studies
    - Alain Bellerive
  - Undergraduate Program Administrator
    - Joanne Martin
  - www.physics.carleton.ca

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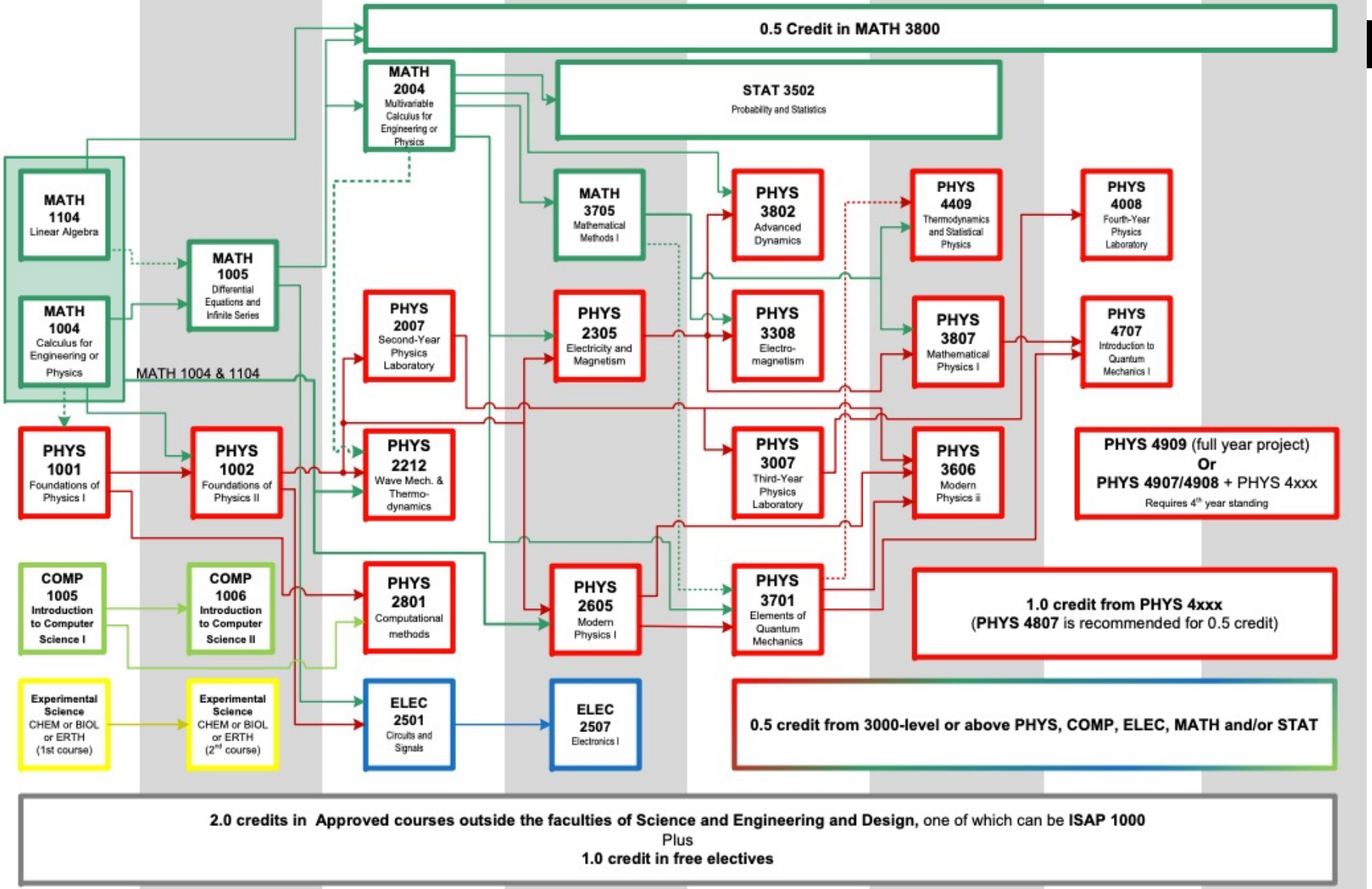
EXPERIMENTAL PHYSICS

Feb. 2025

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	WINTER	FALL	WINTER	FALL	WINTER	FALL	WINTER



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Department of Physics

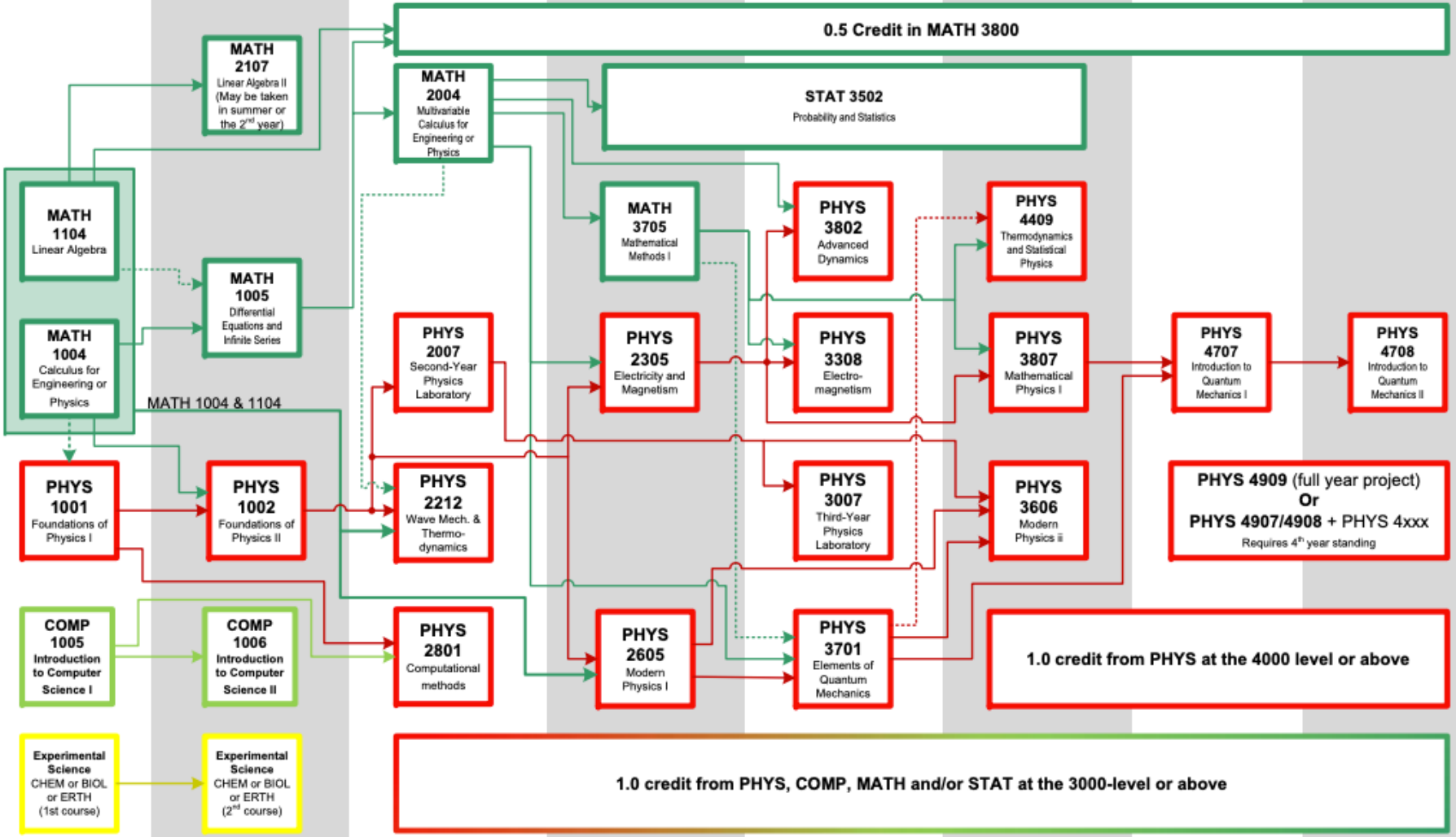
- Physics
- Mathematics and Statistics
- Other Experimental Sciences
- Computer Programming
- Electronics
- Electives

Note:
- Dashed connecting lines indicate concurrent prerequisite.
- Some Experimental Science, COMP, ELEC and MATH, and many elective courses are also offered in summer, which may help to reduce your course load in the Fall and Winter terms.

THEORETICAL PHYSICS

Feb. 2025

FIRST YEAR		SECOND YEAR		THIRD YEAR		FOURTH YEAR	
FALL	WINTER	FALL	WINTER	FALL	WINTER	FALL	WINTER



2.0 credits in Approved courses outside the faculties of Science and Engineering and Design, one of which can be **ISAP 1000**
Plus
1.0 credit in free electives

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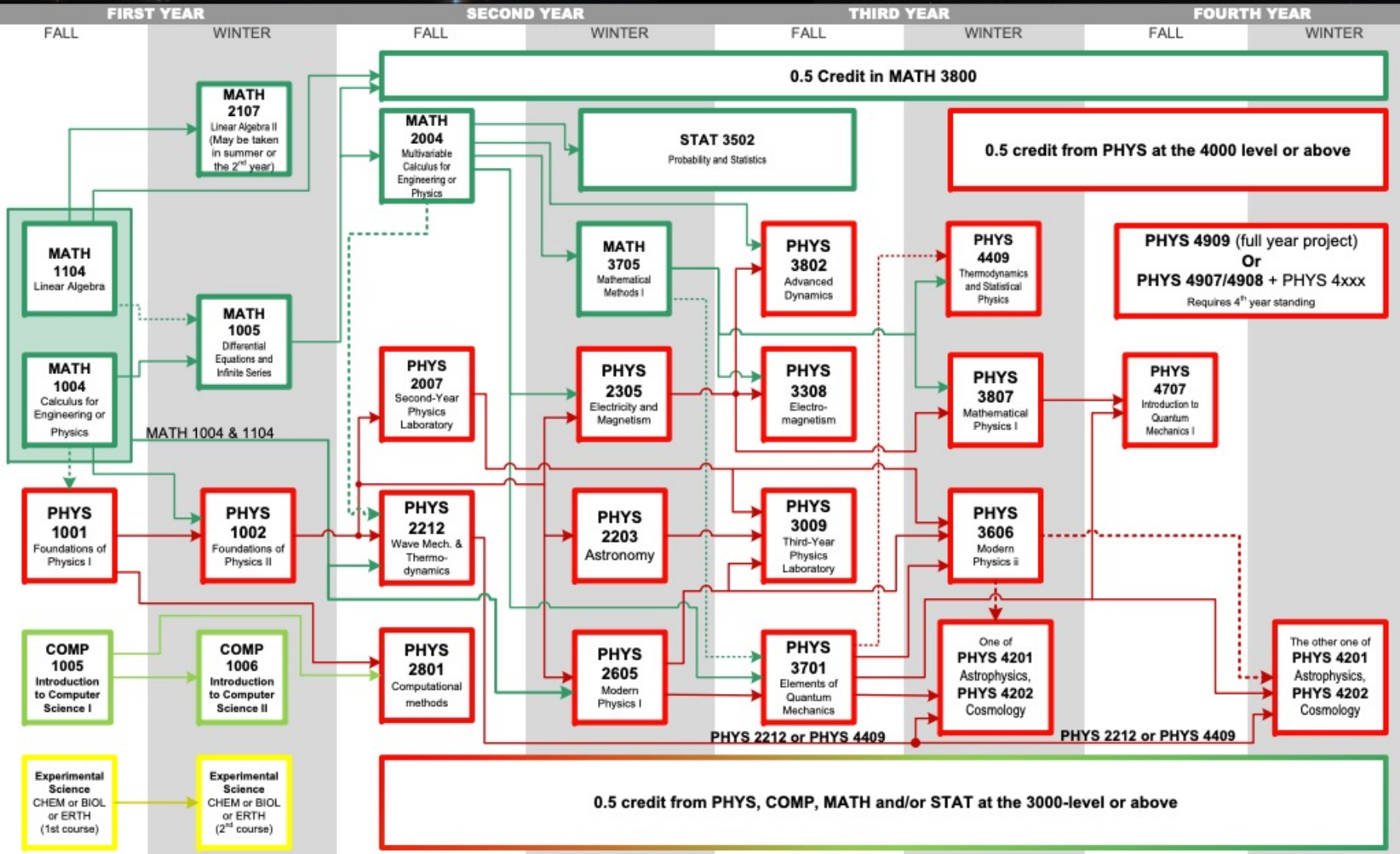
ASTROPHYSICS

Updated Feb. 2025



Carleton University
Department of Physics

Physics
Mathematics and Statistics
Other Experimental Sciences
Computer Programming
Electronics
Electives

Note:
- PHYS **4201** and PHYS **4202** are offered alternatively, take which ever is offered in your 3rd and 4th year.
- Dashed connecting lines indicate prerequisites that can be taken concurrently.
- Some Experimental Science, COMP, ELEC and MATH, and many elective courses are also offered in summer, which may help to reduce your course load in the Fall and Winter terms.

Program and Course issues

You will find a lot of information at

www.physics.carleton.ca

under the **"Current Undergraduate Students"** link

- Which courses to take in each year
- Academic policies including issues of academic integrity

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Consult the Physics Web Pages

https://physics.carleton.ca/current-students

Department of Physics

Current Students

HOME
ABOUT +
FUTURE STUDENTS +
CURRENT STUDENTS −
Undergraduate +
Graduate +
PEOPLE +
RESEARCH
PHYSICS COLLOQUIUM
EVENTS AND OUTREACH +

The Department of Physics endeavors to assist our Undergraduate students in successfully completing their degree programs on time. We offer assistance in varying ways including:

- Access to course outlines
- Program charts to show the progression of your degree
- Registration help and guidance through both the Department and the Registrar's office
- Audit review sessions in the Fall to make sure you are on track with your courses
- Career Services provides job search support, assist with creating your cover letter, resumes and CV's
- And of course you can book an appointment or stop by the main office (3302 Herzberg Bldg) at any point during the year to review your audit or address any questions/concerns you have

Courses

- Course Outline
  - Course content and goals
  - Course structure
  - Grading scheme
  - Office Hours
- Structure: Lectures, Labs, Tutorials
  - High correlation between attendance and marks
  - Listen to the lecture. Take notes - Don't look at your phone.
- Learn by doing!
  - Read text to prepare for class
  - Assignments
  - Lab reports
  - Quizzes, tests, exams
  - Feedback on all this is incredibly important; it tells you our expectations and whether you are meeting them

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Elements of your success

- Read the textbooks!!!!!
- Meet with you lecturer/lab personnel
- Attend classes
  - prepare ahead (read textbook… before or after lecture)
  - take an interactive role
- Work with your colleagues (but respect academic integrity!)
- Develop effective ways to manage your time
- **Math pre-course(s) survey/assistance**

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Courses: The Work!!

- Term is very short – only 12 weeks
- Due dates are fixed
- Much work is done outside of class time
- Stay on top of it all – manage your time
  - Limit your paid work
- In university you will have more freedom, but also more responsibilities
  - Stay proactive
- Develop good habits during the first year. Courses will become more complex.
  - Do not rely on IA to learn (*e.g.* ChatGPT)
  - Increasingly complex courses in your discipline bring the reward of seeing how it all fits together.

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Stay on top of it all – manage your time

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People

- Teaching your classes: professors
  - Talk to us; ask us questions
  - Go to Office hours
  - Email
  - Arrange for meeting
- Running your tutorials: Prof, lab supervisor or TAs
  - Teaching assistants
  - TAs; these are graduate students or senior undergrads
- Labs:
  - Lab supervisory staff
  - TAs
  - Technical staff

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People: Helping you

- Advising in Departments – examples:
  - **Physics drop-in center [run by the Department of Physics]**
  - Undergraduate Advisor
  - Course lecturer
- Advice and Support is available at the faculty and university level
  - Science Student Success Centre
    - http://sssc.carleton.ca/
  - Engineering and Design: http://carleton.ca/engineering-design/current-students/undergrad-academic-support/
  - Student Academic Success Centre/ Learning Support Services
- Your Peers
  - Physics Society

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Science Student Success Center (SSSC)

How to reach us!

Office: 3431 HP

Phone: 613- 520-2600 ext 3111

Email: sssc@carleton.ca

Website: www.carleton.ca/sssc

Facebook Group:

SSSC - Carleton University Science Student Success Centre

We can help you…….

- Find the resources you need on campus
- Improve the way you prepare for your semester.
- Find summer research opportunities
- Improve the way you
  - Manage your time
  - Take notes
  - Study for science exams
  - Clarify ideas and concepts to better understand course content

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We are here to help you **learn how to learn** the things you need to know.

Office hours: Monday - Friday: 8:30 am - 4:30 pm

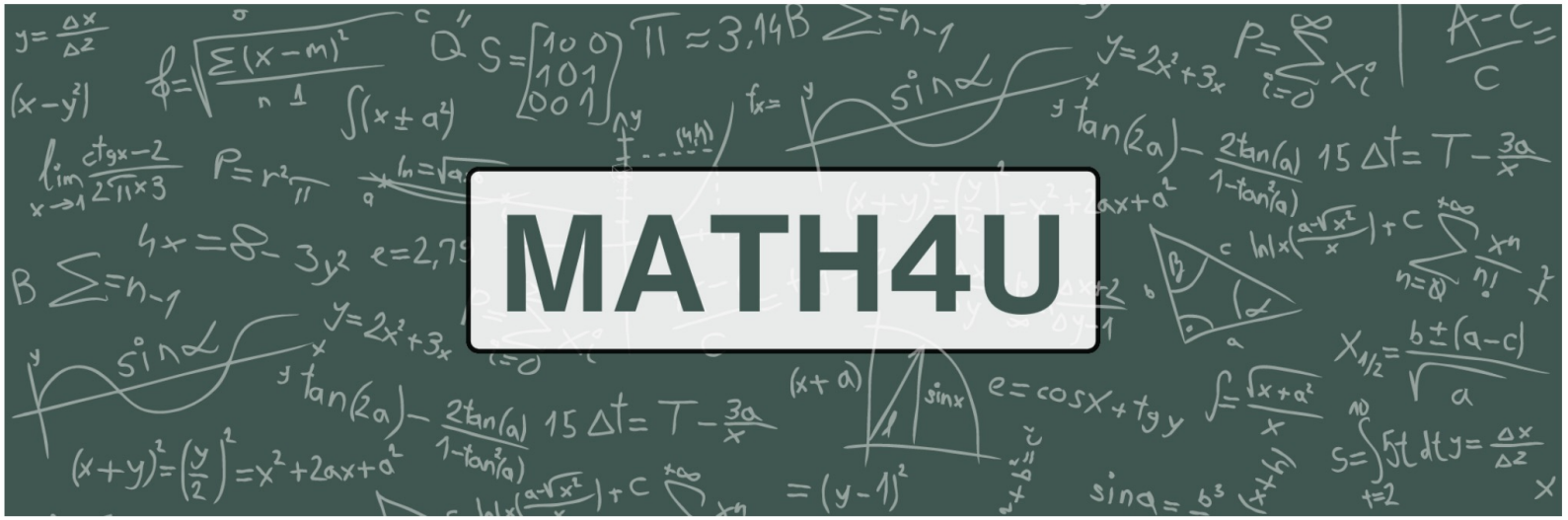
Science Student Success Center (SSSC)

3431 HERZBERG LABORATORIES

Go see them to get assistance!!!!

https://sssc.carleton.ca/

Science Student Success Center (SSSC)



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Do yourself a favor!

https://sssc.carleton.ca/math4u

People: Reaching you

We use **email lists** for sending out both Physics Department and Physics Society announcements.

We construct our lists from Carleton ***cmail*** email accounts.

If you normally use a different account, please have your ***cmail*** email forwarded to the account you check regularly.

University policy is that we only reply to university accounts (not gmail, hotmail, rogers…..)

Please send email to undergrad-advisor@physics.carleton.ca

Always include your student number in email correspondence

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Get involved in YOUR department!

- Pizza with a Professor [Physics Society]
- Observatory nights with the Physics Department Telescope
- Department Seminars
- Canadian Undergraduate Physics Conference
- Canadian Association of Physicists (CAP) Lecture
- Public Lectures

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People: Making the University

- Your professors teach you and also work on cutting edge research projects. Talk to them and get involved.
  - Honours project (in 4th year)
  - Summer research internship (USRA)
  - I-cureus (2nd to 4th year)
  - DSRI (summer internship for 1st year students)
- For your success:

Stay on top of it - Work hard - Have fun - Be excited!

Good Luck!

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