Welcome to the
Department of Physics

A Physics degree opens the door to a range of opportunities, and our vibrant research programme illustrates a variety of topics tackled by physicists – and physics students.

Students in many fields need a sound understanding of the physical world. We offer a comprehensive range of courses in Physics, and potential specialisations in Geophysics, Medical Physics and Imaging Technologies and Photonics.

A Physics degree provides students with the skills they need to succeed, and our graduates are found in a host of interesting jobs in New Zealand and around the world.

We are the largest and best-ranked university Physics programme in New Zealand*. Our students work in a supportive and stimulating environment and learn from some of New Zealand’s leading scientists. University of Auckland physicists are inventing new kinds of lasers, creating innovative technologies to diagnose illnesses in living tissue, understanding the earth’s changing climate, searching for planets around distant stars, and understanding the connections between discoveries in particle physics and the Big Bang, and much, much more.

We are happy to hear from prospective students – please get in touch if you have any questions about studying physics at the University of Auckland.

PROFESSOR RICHARD EASTHER
Head of Department

*See www.science.auckland.ac.nz/excellence
Are you interested in mechanics, waves or quantum physics? What about meteorology and wind? Photons, fibre optics and telecommunications? The stars? Then you’re someone who will get a lot out of physics. With a Physics degree you can plot a learning pathway to enter a career that will take you places you’ve never been before.

Preparation for school leavers
Students interested in physics who have not achieved a Level 3 standard in NCEA Physics are advised to enrol in PHYSICS 102 (or PHYSICS 91F and 92F for Wellesley Programme participants) before attempting PHYSICS 120 and 121.

Complementary majors
A double major is strongly recommended as it will enhance your career options by providing a broader base of skills and knowledge.

**PHYSICS +**
- Applied Mathematics
- Computer Science
- Earth Science
- Geophysics
- Mathematics
- Statistics

For course planning and enrolment: [www.science.auckland.ac.nz/student-centre](http://www.science.auckland.ac.nz/student-centre)

For more information on postgraduate study in Physics: [www.physics.auckland.ac.nz/pg](http://www.physics.auckland.ac.nz/pg)
It is the student’s responsibility to check that the final programme complies with University Regulations. The Faculty of Science is the final authority on all BSc regulations.

BSc degree planner – Physics

1. Courses in a minimum of three subjects listed in the BSc Schedule.
2. At least 180 points (12 courses) must be above Stage I.
3. Up to 30 points (two courses) may be taken from outside the faculty.
4. 30 points (two courses) must be taken from the appropriate General Education Schedules for BSc students.
5. At least 75 points must be at Stage III, of which 60 points must be in the majoring subject.

To view regulations for majors, and course descriptions, see www.calendar.auckland.ac.nz
BSc degree requires: 360 points (24 x 15-point courses). Each box represents one 15-point course. We recommend that students enrol in eight courses each year.

Degree Planners for double majors can be found at www.science.auckland.ac.nz/course-planning

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### BSc

#### Year 1
- PHYSICS 120
- PHYSICS 121
- MATHS 108, 110 or 150
- MATHS 208 or 250

With appropriate prerequisites can also be filled by Stage II or III. Also recommended are PHYSICS 140, CHEM 110 or 120.

#### Year 2
- PHYSICS 201
- PHYSICS 202
- PHYSICS 203
- MATHS 253

Also recommended are PHYSICS 244 and 245, and MATHS 260.

#### Year 3
- PHYSICS 390
- STAGE III ELECTIVE
- STAGE III ELECTIVE
- STAGE III ELECTIVE
- STAGE III ELECTIVE

Stage III Elective: ELECTENG 303, GEOPHYS 310-361, PHYSICS 331-371, STAGE III ELECTIVE

Stage III Science

Stage II or III Science

Any Stage

GEN ED

All italicised Stage I & II courses are recommended preparation for Stage III. Also recommended are PHYSICS 244 and 245, and MATHS 260
## Undergraduate Physics courses

<table>
<thead>
<tr>
<th>Course code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage I</strong></td>
<td></td>
</tr>
<tr>
<td>PHYSICS 102</td>
<td>Basic Concepts of Physics</td>
</tr>
<tr>
<td>PHYSICS 107/107G</td>
<td>Planets, Stars and Galaxies</td>
</tr>
<tr>
<td>PHYSICS 120</td>
<td>Advancing Physics 1</td>
</tr>
<tr>
<td>PHYSICS 121</td>
<td>Advancing Physics 2</td>
</tr>
<tr>
<td>PHYSICS 140</td>
<td>Digital Fundamentals</td>
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<tr>
<td>PHYSICS 160</td>
<td>Physics for the Life Sciences</td>
</tr>
<tr>
<td><strong>Stage II</strong></td>
<td></td>
</tr>
<tr>
<td>PHYSICS 201</td>
<td>Classical and Thermal Physics</td>
</tr>
<tr>
<td>PHYSICS 202</td>
<td>Electromagnetism</td>
</tr>
<tr>
<td>PHYSICS 203</td>
<td>Relativity and Quantum Physics</td>
</tr>
<tr>
<td>PHYSICS 244</td>
<td>Electronics and Imaging</td>
</tr>
<tr>
<td>PHYSICS 245</td>
<td>Frontiers of Physics</td>
</tr>
<tr>
<td>GEOPHYS 213</td>
<td>The Geophysical Environment</td>
</tr>
<tr>
<td><strong>Stage III</strong></td>
<td></td>
</tr>
<tr>
<td>ELECTENG 303</td>
<td>Systems and Control</td>
</tr>
<tr>
<td>GEOPHYS 310</td>
<td>Physics of the Earth</td>
</tr>
<tr>
<td>GEOPHYS 311</td>
<td>Atmosphere, Ocean and Climate Physics</td>
</tr>
<tr>
<td>GEOPHYS 339</td>
<td>Special Topics in Geophysics</td>
</tr>
<tr>
<td>GEOPHYS 361</td>
<td>Fundamentals and Applications of Geophysical Exploration</td>
</tr>
<tr>
<td>PHYSICS 331</td>
<td>Classical Mechanics and Electrodynamics</td>
</tr>
<tr>
<td>PHYSICS 332</td>
<td>Fluid Mechanics</td>
</tr>
<tr>
<td>PHYSICS 333</td>
<td>Lasers and Electromagnetic Waves</td>
</tr>
<tr>
<td>PHYSICS 334</td>
<td>Statistical Physics and Condensed Matter</td>
</tr>
<tr>
<td>PHYSICS 335</td>
<td>Quantum Mechanics</td>
</tr>
<tr>
<td>PHYSICS 340</td>
<td>Electronics and Signal Processing</td>
</tr>
<tr>
<td>PHYSICS 356</td>
<td>Particle Physics and Astrophysics</td>
</tr>
<tr>
<td>PHYSICS 371</td>
<td>Special Topics in Physics</td>
</tr>
<tr>
<td>PHYSICS 390</td>
<td>Experimental Physics</td>
</tr>
</tbody>
</table>

For course descriptions: [www.physics.auckland.ac.nz/ugcourses](http://www.physics.auckland.ac.nz/ugcourses)
### Careers in Physics

<table>
<thead>
<tr>
<th>Astronomy/astrophysics</th>
<th>Computing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air quality management</td>
<td>Exploration geophysics</td>
</tr>
<tr>
<td>Astronomer</td>
<td>Industrial noise control</td>
</tr>
<tr>
<td>Atmospheric scientist</td>
<td>Industrial process control</td>
</tr>
<tr>
<td>Light technician</td>
<td>Land surveyor</td>
</tr>
<tr>
<td>Medical physicist</td>
<td>Meteorology</td>
</tr>
<tr>
<td>Neurophysiology technologist</td>
<td>Pacific oceanography</td>
</tr>
</tbody>
</table>

Liam Quinn is studying toward a Bachelor of Science majoring in Physics and Mathematics.

“I have always loved Physics and Mathematics, and would love to pursue a career in astrophysics or theoretical physics.

“I have a cousin who completed a degree at the University of Auckland and loved his time here. After hearing that the University is ranked* highly in New Zealand, I knew it was where I wanted to study.

“The thing I love most about the programme is working in a team with other like-minded students. In all of my subjects I have made friends who I spend time studying with outside of class. Working in a team for assignments, tutorials and in-class problems has been one of the greatest assets for my learning this year, not to mention being hugely enjoyable.

“It’s a bit too early on in my study to know exactly where I’ll end up. In an ideal situation, I will be involved in research or design with a large emphasis on physics or mathematics. However, considering this is my first year I know that there’s a lot of time for this to change.”

*See www.science.auckland.ac.nz/excellence
Helpful information

Academic dates
www.auckland.ac.nz/dates

Academic Integrity Course
www.auckland.ac.nz/academic-integrity

Accommodation
www.accommodation.auckland.ac.nz

Buy coursebooks
www.science.auckland.ac.nz/resource-centre

Career Development and Employment Services
www.auckland.ac.nz/careers

Course advice and degree planning in Science
www.science.auckland.ac.nz/student-centre

General education
www.auckland.ac.nz/generaleducation

How to apply
www.apply.auckland.ac.nz

How to enrol
www.auckland.ac.nz/enrolment

International students
www.international.auckland.ac.nz

Māori and Pacific students
www.science.auckland.ac.nz/tuakana

Need help?
www.askauckland.ac.nz

Rainbow Science Network for LGBTI students
www.science.auckland.ac.nz/rainbowscience

Scholarships and awards
www.scholarships.auckland.ac.nz

Support for students
www.science.auckland.ac.nz/support

APPLICATIONS CLOSE ON 8 DECEMBER FOR SEMESTER 1

Questions about physics?
physics@auckland.ac.nz

Disclaimer
Although every reasonable effort is made to ensure accuracy, the information in this document is provided as a general guide only for students and is subject to alteration. All students enrolling at the University of Auckland must consult its official document, the University of Auckland Calendar, to ensure that they are aware of and comply with all regulations, requirements and policies.