Dear Entrant Students

Welcome

Welcome to all undergraduate entrants to the School of Physics and Astronomy this September. Congratulations on your achievements that have led to you being given this opportunity, and thank you for choosing the University of St Andrews and our School. I look forward to working with you in the years ahead. I am the Director of Teaching in the School, and as such I am one of a number of people here to assist you in organising your studies.

We are happy that the reputation for teaching, research, and lifestyle that the School and University enjoy means that we get many excellent applicants to study in the School. The relatively high asking rate that we have to use in order to keep our intake numbers down to the allowed value will give you the benefit of finding many other highly-talented students in your classes. The nature of the University and our entrant students means that you are likely to find many other friendly and sociable students in the School, in the student societies and clubs, and in the University residences. I hope that you find your time here to be enjoyable, interesting, and useful.

Information

I imagine that the University has already directed you to relevant information for entrant students that it publishes online. The School also publishes potentially useful material online, and at this stage I would like to draw your attention to the information to new and returning students that is on the “latest news” section of the School’s home page, www.st-andrews.ac.uk/physics/.

The School produces a “First and Second Level Modules” handbook. The draft version for next year will soon be available from the “Students and Staff” section of the School website, “Timetables and Handbooks”. You may receive a paper copy of this handbook in Orientation Week or at the enrolment lectures (details below). Please read through this handbook carefully, as it contains important information about how your studies are organised, what resources are available, and the “rules” of your programme. You are expected to be familiar with the material in this document; I hope you find it to be a useful resource.

Lecture timetables and other items of information are available from links on the School web page. There is still some updating to do.

Level One or Two Entry?

A major question for many entrants is the level at which to start their studies here.

Starting with level-one physics and maths gives a broad-based year of entry, is available for all the degree programmes with which the School is involved at honours level, and can keep the maximum choice of honours degree topic open for you. Even if you are sure that you wish to do a degree involving just this School, taking
first year entry allows you to pick up a number of “extra” subjects to broaden your study, and with the BSc honours degree programme taking four years and the MPhys five. Those entering straight from SQA Highers qualifications are normally obliged to take level-one entry, and most of the joint degree programmes (not maths) require this route also.

Those entrants who choose to take the accelerated-entry programme start off with level two physics and maths modules and can complete the honours BSc programme in three years or the MPhys in four. To enter on this route requires good Advanced Highers or A-levels (or equivalent) in physics and mathematics (AA). This entry route can be good for people who are sure that the degree they wish to aim for is within this School or a joint degree with this School and Maths. Please note that A-level qualified entrants are normally eligible for accelerated entry only if they have done at least one mechanics module in their A-level maths. IB students with offers to join our physics/astronomy degree programmes will normally be in the position to choose either level one or two entry. Those from other qualification systems are welcome to contact us to ask what their options might be. I note that a number of those who are eligible for the accelerated programme still choose to take level-one entry for a variety of reasons, and that accelerated entry students on average do well in the level two physics modules. In recent years between one quarter and one half of our entrant students have taken the accelerated entry route.

Level-two entry is certainly more demanding than level-one entry, but we believe that it suits many entrants well. It is worth noting that those on the accelerated-entry route may take, in addition to the two level-two physics and maths modules, one or more level-one modules. For intending astrophysicists, this would be the condensed level-one astrophysics module AS1101 in first semester, followed by level-two astrophysics in second semester.

There is no need to make a decision on which entry route you wish to take at this stage. This can be discussed with staff here in Orientation week, and I am happy to try to respond to emailed questions before you arrive. We are also holding a session on the Monday of Orientation week where I will say something about the options, and returning students will be available to talk to you about their experience of these two entry routes. Subject to appropriate qualifications, you may register for either level-one or level-two entry during discussions with your adviser, regardless of what you entered on your UCAS form. Although we would like all students in Orientation Week to make the correct decision for them, it can be possible to ask your Adviser of Studies to change you from one entry route to the other until the end of week one.

Students entering on the Gateway to Physics and Astronomy programme will normally enter at level one and take two or three of the dedicated Gateway modules in their entry year.

**Recommended Books**

The core text for Physics 1A and 1B is Halliday, Resnick, and Walker, Principles of Physics, Extended 10th edition. We request that this book should be purchased by all students on these modules. We strongly recommend making this purchase at Blackwells bookshop in St Andrews, as doing so will give students for no additional charge access to the e-learning resources associated with this text. The ISBN number for the book with the "Wiley Plus" online resource is 9781118901601. This resource contains much useful stuff provided by the publisher, and may contain material tailored by us for use at St Andrews. It is available only from Blackwell's bookshop in St Andrews, and costs £54.99. Given the large amount of online resource that comes with this purchase, this seems to us to be good value compared with buying the book elsewhere without the associated electronic resources. If you wish to reserve you may contact the shop on 01334 476367 or st.andrews@blackwell.co.uk. The same textbook is a valuable and recommended resource for second year physics modules, but in some topic areas this book is better as an introduction than a complete coverage.

The main recommended textbook for level-one astronomy and astrophysics is M L Kutner (CUP 2003) *Astronomy – a physical perspective*. This book is also useful for the second level module in astronomy and astrophysics, though may not be the main recommended text. There are additional books that are
Orientation Week

The University will be providing a wide range of events for you in the week of your arrival in September. This is known as “Freshers’ Week” in some universities, but the “Orientation Week” name here is chosen to indicate that as well as various social events there are significant academic-related activities happening that week for students at all levels of study. The full Orientation Week programme provided by the University is available in the University’s App, see www.st-andrews.ac.uk/orientation/ for more details. The School is involved in some of these events, and in providing some activities just for students of physics and astronomy. More details are in the following table, though I recommend keeping an eye on the University and School web pages in case any of these details have to change, and for any new events that are added.

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| Monday 11th | 10.15-11.00 – “Drop-in” welcome and discussion. Informal and optional session in the School’s main concourse with the School's Director of Teaching, School Student President, and others.  
11.30 - University welcoming ceremony for those entering the Science Faculty.  
12.30-2.00 – Academic Fair, College Halls (off St Salvator’s Quadrangle, which is off North Street). This is a good chance to ask questions of staff in schools running modules of interest to you.  
2-3.15 – University Science Induction Event  
4.00 – 5.00 Meeting to discuss first or second year entry in the School of Physics and Astronomy, Physics Theatre B |
| Tuesday and Wednesday mornings | Our Student Physical Society is organizing “Freshers’ Breakfasts” in this building. You are invited to come along, hear about their exciting events, meet students, and tuck in to some food. These are expected to run 9-11 on these two days. |
| Tuesday 12th | 3 – 5.40 pm –Fun Quiz, Reception, and Tour for entrants to Physics and Astronomy Modules.  
All entrant students in physics and astronomy are invited to join us for our “main” event of Orientation Week. We aim to use this to help students meet each other and to allow students to meet with staff and to see and hear something of what happens in the School. We’ll start off with a couple of fun quizzes. We will gather participants into groups to answer a variety of quiz questions, some associated with the School and physics, and some not. Established students will be part of the event too, and there will be a chance to hear about the student astronomy and physics and engineering societies. After this, we will host an informal reception in the main concourse, where you may meet other entrant students, established students, and staff. Some undergraduate students who were doing research projects here over the summer will present their work as posters and you are invited to chat with them too. After that we will have a chance to see/hear about some of our research, and take a tour around some parts of the building that you will using in the coming weeks and months. |
<p>| Wednesday 13th | At 10 am we have our link person in the University Careers Service in to talk about careers using physics and astronomy, joined by our Director of Postgraduate studies to talk on that subject. Although aimed more at third year students, you are welcome to attend to see the sorts of things that may be open to you, and what you might wish to try to do during your time as a student to open up these opportunities. |</p>
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<th>Wednesday 13th</th>
<th>Our Student Astronomical Society and Engineering Group are planning a barbecue and rocket launch, running noon to 3 pm outside the University Observatory.</th>
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<td>Thursday &amp; Friday</td>
<td>Most classes in our School are running in their usual time slots on these two days. Please see the School website, “Students and Staff” Page, “Timetables and Handbooks”, Orientation Week Timetable.</td>
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<td>Thursday &amp; Friday afternoons.</td>
<td>PC Classroom familiarisation and Library induction sessions for all undergraduate entrants to the School. Please sign up for a place on the main academic notice boards in the School. All entrants are asked to attend one of these ~1 hour sessions.</td>
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Many of the above activities are optional, but in Orientation week you must attend a meeting with your Adviser of Studies to decide on your module choices for the year, and you must attend the teaching sessions on the Thursday and Friday, please. The advising time slots that you can sign up for on notice boards in the School are likely to be within 9 to 5 on Monday to Wednesday. You should try to complete the online “pre-advising” before you arrive in St Andrews, if this is possible for you. Please see [http://www.st-andrews.ac.uk/newstudents/programmes/science/](http://www.st-andrews.ac.uk/newstudents/programmes/science/)

**Teaching, Organisation, and Advice for Students**

Conventional classes will start from Thursday, September 14th, 2017. You should come along prepared to listen, write, think, discuss, and question, please.

Timetables for all AS and PH modules will be available on the School website [https://www.st-andrews.ac.uk/physics/staff_students/timetables.php](https://www.st-andrews.ac.uk/physics/staff_students/timetables.php) and on the main academic notice board in the main concourse (seating area and café) of the School of Physics and Astronomy. The University Registry provides personal timetables online, but these may not include what tutorial and lab times you have selected, etc. We recommend that you look carefully at what the School publishes at the link above, and note the tutorial and lab times that you select from the choices that you may be given. There may have to be changes to locations etc after we know how many students have enrolled in to each class, and we will endeavor to keep the School timetables up to date with this.

My colleagues and I will be available to assist you in your time at St Andrews. Your Adviser of Studies may be the first formal contact with the School, or you may wish to discuss your options informally with staff at the Academic Fair or in the drop-in sessions beforehand. Your Adviser continues to be available throughout the year for your assistance, as indeed do all our staff. Advisers for level one and two physics and astronomy students this coming year will be Drs Natalia Korolkova, Friedrich Koenig and Graham Smith and Prof Moira Jardine, with the adviser allocated to you depending on where your family name’s initial falls in the alphabet. Please feel free to talk to my colleagues or me before and after lectures, in tutorial groups, and in the laboratories. We are also available to give advice on an individual basis. The names and locations of staff are on the School’s webpage and in our handbooks. I note that we have a link on the School’s “Staff and Students” -> “Student Resources” web page to “Who should I contact for advice or help?”, which may be of use to you in your time with us.

Each of the level-one and level-two modules within the School has its own teaching team and its own coordinator. The coordinator is another person who can provide advice for you, and who will be interacting with you regarding various administrative aspects of the module. Physics 1A is coordinated by Dr Peter Woitke (email pw31, room 306). First semester Gateway modules are coordinated by Dr Paul Cruickshank (PH1502, email pasc, room 305), and Dr Irina Leonhardt (PH1501, email il4, room 210). Level two physics modules are coordinated by Dr Paul Cruickshank (email pasc, room 305). Level-one astronomy and astrophysics AS1001 is coordinated by Dr Aleks Scholz (email as110, room 331) and the condensed level one AS1011 version for those entering directly to second year is coordinated by Dr Anne-Marie Weijmans (email amw23, room 334).
We look forward to working with you in your studies of physics and astronomy. You have been highly successful in your school or college based studies and assessments. We are keen for you to succeed in your university studies. Here, as an adult learner, you will have much more freedom as to how you spend your time, and you may be expected to do rather more study by yourself than you may have been used to. It is up to you to schedule your time to ensure that you do sufficient study to understand the material fully, to complete the tutorial sheets, the lab work, and revision. We ask you to take responsibility for your own learning. You should be asking yourself if you really understand something sufficiently well, and you should be the person taking steps to get you to a full understanding if you feel this is not the case. We provide lots of learning opportunities, and access to advice and support, but it is you who must drive your studies.

You may find a difference in emphasis from previous studies; the material we will be working with and assessing will focus as much on understanding how we get from basic physics to a particular relationship as on the relationship itself. We wish you to come to terms sufficiently with the material that you can work successfully with it, and be able to do “new-to-you” things with it. The complexity of the material is likely to increase, and your problem solving and conceptual reasoning skills will need to be developed. But in your studies there will be plenty of support offered. The normal lectures, tutorials, problem-solving workshops, and labs are the “standard” parts. You can ask for advice and assistance from various people as noted above. Fellow-students can be very valuable partners in your learning. Textbooks and the web can be great sources of information, and as your studies progress articles in research journals will become accessible.

We hope that the challenges will be interesting ones, and of course it is the set of skills, abilities, and knowledge gained from your time at University that can set you up for all sorts of other interesting opportunities in the future. We realise that life as a student is not all about academic work. There are all sorts of other interesting activities available. We ask, however, that you strive to strike a sensible balance between academic study and time on leisure and any employment. Your first year of studies here gives the foundation for all your future study with us. It is important that you put in enough time to your academic work in your entrant year to make these foundations secure. We expect students to start working seriously on their studies here from day one, please; you need to keep up with the material, and practice using it, as it is developed in the module.

You may come across some students who try to tell you that the work in first and second year is not important as it does not contribute to the degree classification. In our discipline, at least, they are wrong. The knowledge and skills developed in level 1 and 2 physics and maths (and astrophysics where appropriate) is the foundation for the study in the honours years, and it is essential that this foundation is strong. It may also be worth noting that grades from all your modules will appear on your final transcript, and that a minimum attainment in second year is required for entry to the honours programme.

Staff at the University’s Student Advice and Support Centre can provide advice and assistance in the case of personal difficulties (small or large) in your time here. http://www.st-andrews.ac.uk/students/advice/

There is maths support study skill advice available to you in the “CAPOD” central unit. http://www.st-andrews.ac.uk/capod/students/studentdevelopment/

The University Careers Centre can provide guidance on what you might choose to do while at University to maximise your options post-graduation.

However, while there is a great deal of support available to students, it is up to students as adults to seek that support in the first place. Please do make use of the advice and assistance that is available to you.
Finally

As the start of your time at St Andrews approaches, it might be worth considering doing some additional preparation for your studies. It is perhaps surprising how “rusty” some physics and maths can become over the summer! You may wish to look through both your maths and physics notes. In particular, you might want to spend some time on the mechanics that you covered in both maths and physics, and compare and bring together what you did in those studies. Those seeking some revision of their core maths skills may wish to look at the useful material online at MathCentre:  www.mathcentre.ac.uk/

We are pleased that our School has a reputation for being “student-friendly”. Please do make good use of the opportunities and the advice and support available here.

A major part of our jobs is to provide you with the opportunities to develop as a physical scientist, and we look forward to working with you in that endeavour. If you have any queries that you wish to have answered before you come to St Andrews, by all means get in contact with me.

Best Regards

Bruce

Bruce Sinclair