Department of Earth and Environmental Sciences

1\textsuperscript{st} Year Handbook

Academic Year 2015/2016
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Welcome to Earth and Environmental Sciences at St Andrews

This handbook provides information on the 1st-Year course within the Department of Earth and Environmental Sciences. Please read it carefully because it addresses aspects of the organisation and content of the programme and modules, and indicates what is expected of you. It is also important that you are aware of the University regulations that govern your degree and these can be found in the University’s Student Handbook.

http://www.st-andrews.ac.uk/studenthandbook/

If you undertake the BSc Geology or Environmental Earth Sciences degrees you normally complete four Sub-Honours modules within Earth and Environmental Sciences, if you undertake the MGeol Earth Sciences degree you normally complete five Sub-Honours modules within Earth and Environmental Sciences over your 1st and 2nd Year studies as preparation for Honours study. Students intending to do Joint degrees complete four modules. To gain entry to 2nd-Year modules, you must pass the 1st-Year Earth Science ones, or be granted special dispensation by the Sub-Honours Coordinator, Director of Teaching, and Head of Department.

Your 1st Year Earth Sciences Modules are:
- **ES1001: Planet Earth** (Semester 1)
- **ES1002: Earth Resources & Environment** (Semester 2)
Neither requires a pre-requisite, but it is advisable to take ES1001 prior to ES1002.

Your 2nd Year Earth Sciences Modules are:
- **ES2001: Dynamic Earth: The Earth System** (Semester 1)
- **ES2002: Dynamic Earth: Magma, Minerals, and Metamorphism** (Semester 2)
- **ES2003: Dynamic Earth: Earth Surface Processes** (Semester 2)
- **ES2004: Practical & Field Skills for Earth Sciences (Direct Entrants)** (Whole Year)

Information on these modules is provided in the pages that follow. General enquiries about the programme should be directed to the Sub-Honours Co-ordinator, Dr Vincent Rinterknecht (Rm 419, Tel: ex-2382; e-mail: vr10). Questions about a particular part of any module should be raised in the first instance with the specific lecturer involved. The Course Secretary is Frankie Kerr-Dineen (Rm 211, Tel: ex-3940, e-mail: fkd).

All the staff in the Department hopes you enjoy the modules and are inspired by the study of the Earth. Good luck with your studies.

Dr Vincent Rinterknecht - Sub-Honours Co-ordinator (vr10@st-andrews.ac.uk)
Historical Note
As a student of Earth Sciences at St Andrews, you are part of a long tradition of scientists studying our planet. John Playfair (graduate 1770) produced an appreciation of Hutton’s *Theory of the Earth* in 1802. M.F. Heddle (Professor of Chemistry in 1862) was a distinguished mineralogist, founder of the Mineralogical Society, and amassed an outstanding collection of Scottish minerals, many of which are in the Royal Scottish Museum in Edinburgh. Professors J.D. Forbes (Principal of the University 1859-1868), Charles Lapworth (English master at the local school 1875-1881), and Robert Chambers (graduate 1868 and founder of Chambers Publishing House), contributed significantly to the science of geology during the 19th Century. The first lectureship in Geology was instituted in 1903 and a Chair was endowed in 1936.

In 1997 the Departments of Geology and Geography were merged into a School of Geography & Geosciences. In 2010, Geology was restructured as the Department of Earth and Environmental Sciences and expanded in academic staff with expertise in biological, chemical, and geophysical processes operating within the solid Earth and at Earth’s surface: in other words, the atmosphere, biosphere, cryosphere, hydrosphere, and lithosphere.

Structure of the Department
The Department is organised into academic staff, technical staff (who manage labs and equipment) and secretarial staff. A full list of staff can be found at:

http://earthsci.st-andrews.ac.uk/contacts.html

Department management is maintained through a number of committees. Most relevant to you is the Student-Staff Council that provides a forum for exchanging ideas and voicing opinions regarding the programme. It is chaired by the Student President and consists of elected Sub-Honours and Honours representatives and an academic staff member. It meets every semester and reports directly to the Department’s Teaching Council.

Earth and Environmental Department Roles

<table>
<thead>
<tr>
<th>Role</th>
<th>Contact</th>
<th>e-mail</th>
<th>extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint Head of School &amp; Head of Earth &amp; Environmental</td>
<td>Professor Peter Cawood</td>
<td>pac20</td>
<td>3911</td>
</tr>
<tr>
<td>Science</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Director of Teaching</td>
<td>Dr Ruth Robinson</td>
<td>rajar</td>
<td>3996</td>
</tr>
<tr>
<td>Director of Postgraduate Studies</td>
<td>Dr Michael Singer</td>
<td>mds21</td>
<td>2874</td>
</tr>
<tr>
<td>Honours Adviser of Studies</td>
<td>Dr Michael Singer</td>
<td>mds21</td>
<td>2874</td>
</tr>
<tr>
<td>Honours Geology Degree Champion</td>
<td>Dr Tim Raub</td>
<td>mds21</td>
<td>2874</td>
</tr>
<tr>
<td>Honours Environmental Earth Sciences Degree Contact</td>
<td>Dr Aubrey Zerkle</td>
<td>az29</td>
<td>4949</td>
</tr>
<tr>
<td>MGeol Earth &amp; Environmental Sciences Degree Contact</td>
<td>Dr Adrian Finch</td>
<td>aaf1</td>
<td>2384</td>
</tr>
<tr>
<td>S coding requests</td>
<td>Dr Ruth Robinson</td>
<td>chd</td>
<td>3935</td>
</tr>
<tr>
<td>Honours student support and advice</td>
<td>Dr Michael Singer</td>
<td>mds21</td>
<td>2874</td>
</tr>
<tr>
<td>Disability Co-ordinator</td>
<td>Mrs Frankie Kerr-Dineen</td>
<td>fkd</td>
<td>3940</td>
</tr>
<tr>
<td>Examinations Officer (Semester 1 only)</td>
<td>Dr Colin Donaldson</td>
<td>chd</td>
<td>3935</td>
</tr>
<tr>
<td></td>
<td>Dr Adrian Finch</td>
<td>aaf1</td>
<td>2384</td>
</tr>
<tr>
<td>Director of Research</td>
<td>Dr Tony Prave</td>
<td>ap13</td>
<td>2381</td>
</tr>
<tr>
<td>Health &amp; Safety Officer</td>
<td>Dr Aubrey Zerkle</td>
<td>az29</td>
<td>4949</td>
</tr>
<tr>
<td>Course Secretary (working hours 9am to 3.15, M to Th)</td>
<td>Mrs Frankie Kerr-Dineen</td>
<td>fkd</td>
<td>3940</td>
</tr>
</tbody>
</table>
Accommodation and Daily Activity

The Department, staff offices and Lapworth and IT Laboratories are in the Irvine Building. 1st-Year and 2nd-Year lectures are held in or near the Irvine Building. Laboratory sessions are in Room C21 Bute Building and the IT Laboratory. Tutorial sessions are held in a variety of places and you will be informed of these during your lectures. Field excursions occur variably on weekdays or weekends and you will need to consult the timetable and your e-mail for times and itineraries (see below). If you have a timetable clash, please contact the Sub-Honours Coordinator immediately.

When not in use you can work in Room C21 09:00–17:00, Monday–Friday and there is 24-hour access to the IT Laboratory during the semester when not in use for teaching. During the term, the main library is open until 2AM Sunday–Thursday and midnight on Friday–Saturday.

The School Office (Rm 211) is open Monday to Friday, 9am to 5pm.

Moodle

You can access course details and content (lecture notes, timetables, etc…) through Moodle, the University's online system. Each module will generally have an associated Moodle site and, once registered in a specific module, you will automatically have access to that. Lecturers usually upload lecture notes reasonably soon after they are delivered. Information on timetables, field excursions and various Department events is available on the appropriate Moodle site.

You are expected to check your e-mail daily for messages from staff about the modules---University policy is that email must be checked every 48 hours.
ES1001: Planet Earth

This module provides an understanding of Earth’s physical processes and development of the Earth System, as well as a comparison of Earth to other planets. It forms a foundation into the study of Earth and environmental sciences, introducing you to the bulk structure of the solid Earth and the dynamic interactions between that and the hydrosphere, atmosphere and biosphere from planetary to atomistic scales. Topics covered include Earth surface processes, formation and properties of minerals and rocks, ecosystems, climate and carbon cycling, evolution of life and planetary science.

Practical and transferable skills developed in tutorials and laboratory exercises include the identification of minerals and rocks in hand specimen and using microscopes. You will gain experience working in groups, giving oral and written presentations, using the University’s computer and library facilities for data acquisition, and critically assessing scientific data.

Fieldwork

Fieldwork will be undertaken as two half-day excursions (see Timetable and Notice Board for time and date).

- **South coast of Fife**: Introduction to making and recording basic geological field observations and techniques.
- **Rock and Spindle**: Study of the eroded remnants of a Carboniferous volcanic neck.

*Note that any material discussed or observations made during the field excursions may be assessed during practical exams or end-of-term exams.*

Tutorials and Techniques Sessions

The class will be divided into groups and each group will be assigned a tutor. A number of tutorial sessions will be held throughout the semester and organised around two key themes:

- **Earth Sciences Group Poster and Report**: This is an 8-week project designed to enhance your scientific report writing and teamwork skills using a topical *Earth Science* issue. Two items will be produced: a Group Poster for which a printing fee of £8 (per group) must be paid via the online shop ([https://onlineshop.st-andrews.ac.uk/](https://onlineshop.st-andrews.ac.uk/)), and an individually written 1000-word Report. A handout will be provided with instructions and key deadlines.

- **Field Notebooks**: This focuses on field notebook techniques and will be applied on the Rock & Spindle excursion. Emphasis will be on the types of data and observations that need to be made to interpret the geology of an area, and how to record such data. A feedback session will discuss the organisation, quality and quantity of your field notes.

Assessment

Assessment is 50% continuous assessment and 50% final examination.

- **Continuous Assessment (50% of module mark)**
  - Assessment 1 (20%): Group Project Report and Poster
  - Assessment 2 (30%): Two-hour, open-book practical exam on the material covered in the labs and field excursions

- **Final Assessment - End of Module Exam (50% of module mark)**
  A written examination will be given at the end of the module; it will be 2 hours long, closed book and consist of a short-answer section (60%) and an essay-style section (40%). Examples of past scripts are available from iSaint at: [http://www.st-andrews.ac.uk/students/academic/Examinations/pastpapers/](http://www.st-andrews.ac.uk/students/academic/Examinations/pastpapers/)
ES1002: Earth Resources and Environment

This module builds on the knowledge gained in ES1001, with an underlying theme of the Earth’s resources and environment. Processes characterizing various tectonic settings (volcanism, metamorphism, etc...) and the associated natural hazards lead into Earth resources (metals, hydrocarbons, energy and more) and problem solving for resource and environmental issues. Topics covered include structural and tectonic geology, volcanic rocks and processes, orogenesis and metamorphism, the geological history of Scotland, metal and non-metal Earth resources, alternative energy forms, the water cycle and natural hazards.

ES1002 will further develop practical and transferable skills in tutorials and laboratory exercises associated with key topics introduced in lectures. Field skills are refined during a 6-day residential excursion to northeast Scotland held around the Easter break.

Fieldwork

Fieldwork for ES1002 is spread over three excursions (see Timetable and Notice Board for times and dates). These provide first-hand experience in doing fieldwork and making interpretations. You gain self-confidence by transforming classroom learning into real experience and through getting to know your peers and staff better. You gain experience in identifying a wide range of rock types, minerals and fossils, recognising natural resources, taking geological measurements, refining your field notebook skills, and how to interpret your data to construct a geological history. You will also assess how geological features influence the shape of the modern landscape and consider how the different natural processes formed those features over time. Importantly, you will contrast modern-day processes with those recorded in the rocks and appreciate what James Hutton recognised more than two centuries ago: that Earth History has "No vestige of a beginning, no prospect of an end."

**Fife Coastline:** This excursion is to observe and interpret past environments preserved in Carboniferous rocks. You will find and collect your own fossils and interpret the conditions in which they lived.

**Kinkell Braes Mapping:** This excursion introduces you to geological mapping and map construction. Such maps underpin most geological research.

**Easter Break "Highland Fling" Residential Field Course:** This is a 6 day residential excursion that will run from March 12th – 17th. We follow a tour of some of Scotland’s most classic geological outcrops, including the fantastic exposures along the Highland Boundary fault near Stonehaven, those associated with the Great Glen fault and over to the west coast and Britain’s highest peak, Ben Nevis. In addition we will visit working quarries and old mines. The Department provides partial financial support and every effort is made to keep costs to a minimum, but you should anticipate a fee of £150. You will be given a schedule to pay this 6 weeks before the excursion. Failure to do so by the payment date could mean you will miss the trip. Fieldwork Prizes will be awarded to the top three field notebooks of the excursion. This trip is assessed and attendance is highly recommended.

Note that any material discussed, or observations made, during the field excursions may be assessed during practical exams or end-of-term exams.

Tutorials and Techniques Sessions

Technique sessions are held that provide feedback and support for examinations, mapping and field notebook skills. The keys ones involve:

**Careers Information:** This provides an outline of different careers for Earth scientists, how to start preparing for your career, how to build a CV that “stands out from the crowd”, and what you can do to develop work experience.
Techniques Session 1: Class de-briefing on ES1001 exam performance: This session provides feedback on the ES1001 exam results and allows you to evaluate how you performed relative to the whole class.

Techniques Session 2 and 3: Mapping techniques: These are designed to provide further guidance and feedback on how to construct a geological map and record structural data in field notebooks. Session 3 is the feedback session on the maps and notebooks from the Kinkell Braes field excursion.

Assessment
Assessment is 50% continuous assessment and 50% on a final examination.

Continuous Assessment (50% of module mark)
• Assessment 1 (5%)  Kinkell Braes Field Excursion map and notebook.
• Assessment 2 (20%)  Easter Field Excursion notebook.
• Assessment 3 (25%):  Two-hour, open-book practical exam on the material covered in the labs and field excursions; held during last week of classes

Final Assessment - End of Module Exam (50% of module mark)
A written examination will be given at the end of the module; it will be two hours long, closed book and consists of a short-answer section (60%) and an essay-style section (40%).

Examples of past scripts are available from iSaint at: http://www.st-andrews.ac.uk/students/academic/Examinations/pastpapers/

Required Textbook for ES1001 and ES1002
Stephen Marshak's book, Earth: Portrait of a Planet (2015) 5th edition Norton Press (paperback) ISBN 9780393937503, is the only text required for 1st-Year Earth Science (previous editions are also acceptable). Other useful introductory geology texts are in the Main Library. Feel free to ask your lecturers to provide suggestions for additional readings.

Study Hints
The transition from school to University can be difficult and your success in the first year is often as dependent on self-discipline as academic ability. Attending lectures, the quality of note taking and doing assigned and additional readings is your responsibility. Discuss the lectures and compare notes with your classmates. Don't hesitate to ask questions. If you are still confused, make it a point to see the lecturer afterwards. Lecturers and demonstrators are there to help guide you in your learning, but University training is largely about becoming an independent, critical thinker. The initial learning curve is steep, but soon you will be adept at knowing what type of notes to take and how to take them, and the amount of out-of-lecture studying time necessary for you to reach and maintain a high standard of learning.

Some very reliable tips: 1) read over lecture/lab notes soon after the lecture/lab and highlight words or concepts that you don't understand; 2) read the relevant chapter in the textbook and annotate your lecture/lab notes with explanations; 3) at the end of your notes for each lecture/lab, make a list of what you think were the main points. You should then target your reading to these main (key) points. The sooner you do all of the above after the lecture/lab, the better and more efficient your studying will be.
**Going on with Earth Sciences**
You normally must pass ES1001 and ES1002 to be considered eligible for 2nd-Year studies or have the appropriate background for direct entry to Level 2. The 2nd Year modules differ from their 1st Year counterparts in that they are in much more depth. The Sub-Honours Co-ordinator can provide you with information on those. For details of the content of Honours modules and entry into Honours, please see the Honours Coordinator.

**Last Words**
Your first year of Sub-Honours study is the initial step in your progress to a BSc or MGeol degree - you will be surprised how quickly the year will pass! Forming good work habits and a modicum of intellectual discipline early in your academic career will reap enormous benefits. Geology adds richness to your life: there is a deep satisfaction in being able to understand and ponder Earth’s evolution as archived in rocks and minerals, and appreciate how complex and interdependent one part of the planet is on another.

The student **Geological Society (GeolSoc)** is a great forum for learning more about Earth Science from your peers, informal mentoring from more senior students, finding out what you can expect in future years, and how much fun you will have as an Earth Science student at St Andrews. Thus, we strongly urge you to join **GeolSoc** in your first year of study.

.........We hope you enjoy the modules this year and the challenges they present.........

**GOOD LUCK!**
Sub-Honours Marking Scheme

In accordance with normal practice amongst the physical sciences at St Andrews, your work will be marked as a % and this will appear on the returned work. The % marks from each of the assessments in the module will be amalgamated to provide a weighted mean %. However, the University logs final marks from modules across the disciplines using a 20-point scale, and hence we will convert your overall module % mark to the 20-point reporting scale in a predefined way called the “Earth Sciences Sub honours Translation Function”. The relationship between % and 20-point reporting scale is given below.

<table>
<thead>
<tr>
<th>Percentage mark</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>85 – 100</td>
<td>20</td>
</tr>
<tr>
<td>80 – 84.9</td>
<td>19 - 19.9</td>
</tr>
<tr>
<td>70 – 79.9</td>
<td>17.0 – 18.9</td>
</tr>
<tr>
<td>60 – 69.9</td>
<td>13.0 – 16.9</td>
</tr>
<tr>
<td>55 – 59.9</td>
<td>11.0 – 12.9</td>
</tr>
<tr>
<td>45 – 54.9</td>
<td>7 – 10.9</td>
</tr>
<tr>
<td>32 – 44.9</td>
<td>4 – 6.9</td>
</tr>
<tr>
<td>&lt; 32</td>
<td>&lt; 3.9</td>
</tr>
</tbody>
</table>

* In accordance with standard educational practice, a particular exercise may use a different conversion in the light of class performance and/or moderation by the External Examiner. In that case, it may be appropriate to have a different correspondence between % and the Sub Honours classification.

The precise conversion is made as follows:

<table>
<thead>
<tr>
<th>PERCENTAGE</th>
<th>GRADE POINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>85 - 100</td>
<td>20</td>
</tr>
<tr>
<td>70 – 84.9(999)</td>
<td>Multiply % by 0.20 and add 3</td>
</tr>
<tr>
<td>40 – 69.9(999)</td>
<td>Multiply % by 0.40 and subtract 11</td>
</tr>
<tr>
<td>0 – 39.9(999)</td>
<td>Multiply % by 0.125</td>
</tr>
</tbody>
</table>

In accordance with University policy, the result of each module will be awarded a Scale Point from 1 – 20; Registry will notify you of this after the Examination Diet. In Earth Science most coursework is marked as a percentage and then converted to a scale point and returned work will normally show both.

If you have done modules in other physical sciences, you may find that their conversions between % to 20-point scale are different to ours - this is because it is easier in some disciplines to obtain high marks (such as maths where 100% marks are common!). The use of the 20-point reporting scale and the different conversions are designed to provide greater comparability between student performances across the breadth of University subjects.
The Table below shows the correlation between those and Ranks.

<table>
<thead>
<tr>
<th>Reporting Scale</th>
<th>% equivalent</th>
<th>Designation</th>
<th>Criteria for Essay-Type Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>85-100</td>
<td>First Rank</td>
<td>Exceptional work showing exemplary organisation, mastery of topic and sound critical judgment. Demonstrates flair, superior insight and innovative work.</td>
</tr>
<tr>
<td>19.9-19.9</td>
<td>80-84.9</td>
<td>First Rank</td>
<td>Excellent answer which reflects all of the following: evidence of extensive reading and a thorough understanding of relevant concepts, with original commentary and critique. Excellent use of data/examples.</td>
</tr>
<tr>
<td>17.0-18.9</td>
<td>70-79.9</td>
<td>First Rank</td>
<td>Very good answer which reflects most of the following: evidence of extensive reading and a thorough understanding of relevant concepts, with original commentary and critique. Very good use of data/examples.</td>
</tr>
<tr>
<td>13.0-16.9</td>
<td>60-69.9</td>
<td>Second Rank</td>
<td>Good answer that displays most or all of the following: well structured, organised, coherently written and presented; logically argued; sound grasp of topic; evidence of adequate reading; good use of examples.</td>
</tr>
<tr>
<td>11-12.9</td>
<td>55-59.9</td>
<td>Third Rank</td>
<td>Reasonable answer that displays some, but not most, of the following: well structured, organised, coherently written and presented; logically argued; sound grasp of topic; evidence of adequate reading; good use of examples.</td>
</tr>
<tr>
<td>7-10.9</td>
<td>45-54.9</td>
<td>Pass</td>
<td>Pass answer, but flawed by one or more of the following: poor organisation or presentation; illogical argument; tenuous grasp of topic; insufficient reading; poor use of examples; irrelevancy.</td>
</tr>
<tr>
<td>4-6.9</td>
<td>32-44.9</td>
<td>Fail with Resit</td>
<td>Marginal fail: seriously flawed by poor organisation, misconceptions and limited understanding of topic, lack of reading, and/or irrelevancy.</td>
</tr>
<tr>
<td>&lt;3.9</td>
<td>&lt;32</td>
<td>Fail with no Resit</td>
<td>Fail lacking in substantive content: exhibits next to no grasp of topic and/or is largely irrelevant. No discernible structure or argument.</td>
</tr>
</tbody>
</table>

Please refer to the below link for further information on the University’s policy on Classification, Grades, Marks and 20-point scale.


Earth Sciences staff aim to mark work within 3 weeks of submission, but there can be good reason why that is not possible. Examine the comments on your returned work carefully and reflect on how to improve future performance.
It is important to realise that, in accordance with normal educational practice, there is no fixed conversion between marks and grades; you may find different conversions (as appropriate to the task set) between modules that you take in different Schools, and any that you take with credit-transfer at other Institutions. Indeed the conversion seen above may for a particular exercise differ, in the light of class performance.

**Further Guidance About Assessment**

It is essential to devote appropriate amounts of time to daily reading and the revision of lectures and labs throughout a module. Further, you may have more than one piece of work to submit by the same deadline and maybe even at a time when you have extra-curricular demands on your time. Thus, you must plan and manage your time carefully! It is well established that students who defer study until immediately before the exam underperform. Time management is excellent preparation for what will be expected of you in employment.

**Coursework**

Lecturers will explain the nature of each assessment at the beginning of a practical or field course, and its submission. Coursework evaluation is based on lab practical tests, maps, field excursions, essays, and group projects. You are evaluated on your understanding of the principles taught in the course, your skill in applying these and in presenting your findings, and the critical thinking that you have undertaken.

Unless instructed otherwise, submit all assessments to the Department Office with your matriculation number (not your name) and module number. Certain assessments will be submitted through the TURNITIN system, but a paper copy will also be submitted to the Office. Make sure your work is submitted by the deadline—see section on PENALTIES FOR LATE ASSESSMENT OF WORK AND WORK OF INCORRECT LENGTH for information on late submission penalties.

*Note that all continuous assessment grades are technically provisional until endorsed at the Departmental Exam Board meetings with the External Examiner in January and May, thus retain every piece of assessed coursework for possible scrutiny by the External Examiner.*

**Exams**

The dates for 2015-16 are:

- Semester 1 Exam Diet: Monday 7th – Thursday 17th December 2015
- Semester 2 Exam Diet: Monday 9th – Thursday 19th May 2016

Earth Sciences Sub-Honours exams are 2 hours long and consist of answering short answer and essay questions. Questions will be asked about lectures, practicals, field trips, and your related readings. The provisional Examination Timetable will normally be published no later than Week 6 of Semester 1 and Week 7 of Semester 2. You will be advised via the Wednesday memo when the provisional timetable is available and please ensure you check it carefully.

Past exams (essay questions only, not short answer questions) are available through iSaint ([https://isaint.st-andrews.ac.uk/](https://isaint.st-andrews.ac.uk/)). Prepare for exams by writing practice answers against the clock. Answers should include relevant material only using examples from all sources, including lectures, textbooks, journal articles, practical classes and field excursions. Clear, well drafted, appropriately annotated sketches that support your answers are especially useful, and we cannot emphasise this enough – practice drawing sketches through the semester and during revision. Sketching helps you understand the material more fully and highlight aspects requiring additional study.
For essays, it is necessary to cite correctly the reference from which you obtained information. For example: “Sullivan (2006) presents fossil evidence that dinosaurs were in decline before their extinction at the end of the Cretaceous Period”.

Students are required to be available for the full duration of the December and May Examination Diets, including being present through the last day of the semester. Poor time scheduling on your part is not acceptable as a valid excuse for missing an exam.

It is your responsibility to ensure that your handwritten answers provided in examination scripts are legible and can be read by the markers. If a script cannot be read by the marker then this could result in a delay in confirming your module grade. You may be charged for a transcription service and could be required to return to the School(s) concerned in order to transcribe the script. If you have already left St Andrews then you will have to bear the costs of any return travel to the University. More information is available at: https://www.st-andrews.ac.uk/media/teaching-and-learning/policies/illegible-scripts.pdf

More information on Examinations, timetables, rules and re-sits is available from the Student Handbook (http://www.st-andrews.ac.uk/studenthandbook/).

Marking
Exams are anonymously marked: the exam script books are designed so that all your personal details are completed along a strip that you seal before leaving the examination hall (note that short answer papers only have your matriculation number on the front.). The strip will remain sealed whilst your script is being marked and the mark agreed and recorded by the internal marker(s). Only then is the strip opened and your personal details recorded. Further, all coursework and exam scripts are subject to scrutiny by the External Examiner.

Post-exam
The University policy on exam feedback and access to exam scripts is found in the Student Handbook at http://www.st-andrews.ac.uk/media/teaching-and-learning/policies/FeedbackAssessedWork.pdf.

Earth Science students will receive generic feedback on the exam performance of the class. Individuals keen to see their script should arrange to meet with the Sub-Honours Co-ordinator who will review the answers with you.

Penalties for Late Submission of Work and Work of Incorrect Length
The penalty for unapproved late submission of work is subtraction of 5% of the maximum available mark per day or part thereof, for up to 1 week, beyond which the penalty is 100%.

NB: At the insistence of student members of the Earth & Environmental Science Student-Staff Council, a strict policy of “The deadline is the deadline” is adhered to. Requests for extension will only be considered in the case of debilitating illness, surgery, close family bereavement, and failure of a piece of lab equipment needed for an exercise. Such requests must be made BEFORE the deadline. Having extra-curricular activities/responsibilities/duties is not justification for extension, nor is poor time management. Neither is failure of the Irvine Building computer lab, since the University has other computer labs that you can use and since you should always have your work saved on a disc or memory stick.

The penalty for over-length essays is subtraction of 5% of the maximum available mark for work that is over-length to any extent, then a further 5% of the maximum mark per additional 5% over. On the front cover of an essay you must state the word count. The number of words included in the count includes the text, the content of tables but does not include the reference
list, captions to figures and tables and text in maps. Disputes about word count should be taken up with the module coordinator. No item of DEES work may normally be submitted after the first day of each Revision week.

**Threshold Performance**

You must attain an average of at least 32% for coursework otherwise your registration in the module will be withdrawn and you will not be eligible to sit the end-of-module examination. If your exam score is less than 32% you cannot complete the module, regardless of the coursework mark and aggregate score of coursework and exam. Further, you must achieve at least 32% overall (a 4.0 scale point) in order to retain the right to one re-assessment. If you fail a module, but score more than 4 scale points you can re-sit the examination.

Re-sit examinations are worth 80% of the final module mark, and 20% is from the continuous assessed work.

**Progression to Honours**

**Automatic Entry to Honours**

**BSc Programmes**

Students who attain an average of 11.0 or above at first sitting in the requisite ~2000-level modules, and who meet all other programme requirements, will be given automatic offers of entry into Honours programmes (Apart from students on Integrated Masters degrees).

Students permitted automatic entry to Honours will only be permitted to trail one module to a maximum of 30 sub-honours credits into Honours.

**Masters Programmes**

Students who attain an average of 15.0 or above at first sitting in all requisite 2000 level modules in accordance with the programme rules, and who meet all other programme requirements, will be given automatic offers into the Masters programme. They will not be permitted to trail any sub Honours credits into Honours.

**Qualified Entry to Honours**

Students who do not achieve automatic Honours Entry as outlined above and wish to enter Honours must:

a) be eligible for reassessment in the relevant requisite 2000 level modules with grades between 4.0 and 10.9

b) take the requisite entrance examinations and achieve a grade of 13.5 or above in the module(s) retaken, while also meeting the original Honours Entry requirements (e.g. where an average of two or more grades is required).

Qualified entry is not permitted to Masters programme.

Students are not permitted to trail any credits on a qualified entry route.

http://www.st-andrews.ac.uk/media/teaching-and-learning/policies/HonsEntry.pdf

**Honours Classification**

The University applies a common formula for the calculation of the award of Honours classifications. Degrees are classified using a credit-weighted calculation of grades achieved for Honours-level modules (3000 level and above) taken during an approved Honours programme. This ensures consistency, particularly if you are taking a joint degree. Full details of the University’s Honours Classification algorithm can be found at:

https://www.st-andrews.ac.uk/staff/teaching/examinations/honours/
Requests for Review of Decision for Entry to Honours

Students who fail to meet the requirements for entry to honours, and are consequently refused entry to their chosen degree programme, are eligible to request a review of the decision. For additional information and a list of admissible grounds for requesting a review please see http://www.st-andrews.ac.uk/media/teaching-and-learning/policies/honsreviewpolicy.pdf.

Other Regulations and Support

University Student Handbook

The University Student Handbook describes the regulations governing your degree and can be found at: http://www.st-andrews.ac.uk/studenthandbook/

You should make sure that you are familiar with this Handbook, which is also an essential resource for you as it contains information on a range of support services including:

- Semester dates
- Examination dates
- The 20-point common reporting scale
- University statements on classification, grades, marks and the 20-point scale
- Honours classification
- Honours entry
- Good academic practice
- Special circumstances and the S-coding policy
- Academic appeals, complaints and disciplinary issues
- Student support and advice
- Absence reporting for students
- The Dean's List annual awards for academic excellence
- The undergraduate research internship programme (URIP)
- Recording devices in lectures
- Academic Flexibility for Students with Recognised Sporting Talent
- Degree regulations
- Leave of Absence
- Withdrawal from studies
- The Academic Alert scheme for missing deadlines or compulsory elements of a course
- Penalties for late/over-length work
- Feedback on assessment
- Printing and binding services
- Student fees
- Disability support
- Health and safety information

Academic Alert

Academic Alerts are a way of helping students who are having trouble coping with their studies, such as missing deadlines or missing compulsory tutorials. The aim is to flag up problems before they seriously affect grades and to state what support the University can offer. Academic Alerts will be issued by email from the Director of Teaching, Director of Postgraduate Studies, Module Coordinator or Department administrator and will inform on what is wrong and what is required to do. Failure to take the action required will prompt another Alert, eventually leading to a grade of 0X and failing the module. The system is designed to help remedy problems
Alerts will not appear on a student’s permanent transcript. Further details are in the University Student Handbook.

For the Department, compulsory module elements are lectures, lab practicals, field work, tutorials, lab practical tests, and end of module exams. If you are unable to attend for unexpected reasons (e.g. illness, emergency), you need to complete an online Self-Certificate of Absence within three days of the first day of absence (see the University Student handbook for details). Missing three compulsory module elements without adequate explanation will lead to your being awarded 0X for the module.

We monitor attendance and an Academic Alert will be issued if your attendance is poor. In case of a foreseeable absence, you must inform the lecturers ahead of time if you are going to miss a module element and if you do, complete an online Self-Certificate of Absence.

Students who fail to sit end-of-module examinations without good cause will receive the highest level of Academic Alert and a mark of 0X. Absence due to illness or emergency should be reported as soon as possible (see the University Student Handbook for the procedures). You must also inform the Module Coordinator and the Department Office.

**Advising**

At the beginning of each session, before matriculation in the University, undergraduate students must see, in person, their Adviser of Studies who will approve their choice of modules and give guidance on matters relating to academic progress. Ordinarily, you are allowed to change modules up until 13:00 Monday of Week 2 in each semester. After that, your Adviser of Studies or Programme Coordinator must place a special request on your behalf to the appropriate Pro Dean. *No matter what level of module you are studying, you must contact your Adviser of Studies to obtain approval for any change.*

You must not, in any circumstances, enroll yourself into a new module or simply start attending the classes for a new module, at any level, without being Re-Advised. Advising is one of the primary means by which your academic record is maintained and unless you ensure that this is kept up-to-date through your Adviser, you may find you will not receive the credit for the modules you have taken.

**Fieldwork and safety issues**

It is often said that the best geologist is the one who has seen the most rocks. Certainly, one of the biggest appeals of the Earth sciences is the amount of time spent out of doors gaining first-hand experience, often in regions of spectacular scenery. The area surrounding St Andrews is an excellent natural laboratory for geology. In fact, in 1902 Sir Archibald Geikie, the then Director of the Geological Survey, said ‘If I were asked to select a region in the British Isles where geology could best be taught by constant appeals to evidence in the field, I would with little hesitation recommend the East of Fife as peculiarly adapted for such a purpose”.

By its very nature however, fieldwork exposes you to the vagaries of weather and varying terrains. Consequently you need to equip yourself with good field clothing, strong walking boots and carry sufficient food and water. Fieldwork involves scrambling around, inevitably resulting in minor cuts and scrapes. You are strongly advised to consult your doctor or the St Andrews Health Centre for advice (e.g. are injections up to date?) and with your parents and/or the Students Association Services about personal accident and liability insurance.

**Health-and-Safety Code**

The School Field Work Safety code is posted on the Moodle page of the module. You must read it carefully and acknowledge that you have understood it by answering the “mandatory question” available in Moodle. We will make every effort to maintain safety in both the field and in the laboratories and you will be given specific instructions prior to any fieldwork. But, it
is impossible to warn you of every element of risk. Exercising good common sense is the best precaution against accidents; pay close attention to what the lecturer is telling you concerning risks, think before you act and, if you feel uncomfortable or frightened trying to do something, then DON’T DO IT!

In compliance with Safety Regulations, the School will provide you with a hard hat, goggles and a high visibility vest. You will not be permitted to attend field excursions without them. You will also receive a hand lens and a grain size card for examining rocks, minerals and fossils in the field and in the labs. These are your items, they are not to be returned for a deposit, and if you lose them, you must replace them.

First Aid boxes are located in the Bute Lab, and in the Main office and IT, Forbes and Lapworth labs in the Irvine Building. A number of staff are trained First Aiders, including Stuart Allison (01334 463922).

Fire Alarms, Other Alerts and Smoking Policy
If you hear a fire alarm, or are alerted to any other sort of emergency or danger, get out of whichever building you are in quickly and quietly and follow the directions of Safety Officers to the designated meeting area and await their further instructions. If you find a fire, raise the alarm but do not attempt to tackle the blaze. If you are using the Irvine IT computing lab out-of-hours and a fire occurs, alert other users to get out of the building and phone the emergency services on 9-999 (a telephone is on top of the bookcase against the north wall, i.e., the toilet side). You must not re-enter the building until a University official gives permission. All University buildings are non-smoking areas throughout.

Academic Appeals and Complaints
The Undergraduate Student handbook contains information about how to appeal and challenge any marks awarded for assessed work or your module grades, or to make a complaint about your academic experience. The University is committed to ensuring as high a quality of student experience as possible to any student studying in St Andrews. Occasionally things may go wrong and if you are experiencing a difficulty, or are dissatisfied with your academic experience, raise your concerns as soon as possible with the appropriate people. Refer to the University Student Handbook for guidelines and points of contact.

Further Guidance and Support
The ASC (Advice & Support Centre) can provide independent, confidential advice and support for students who are contemplating making an appeal or complaint. For further information contact theasc@st-andrews.ac.uk (01334 462020). In addition, support is available from the Pro Dean who may be contacted at: prodeansci@st-andrews.ac.uk.

Good Academic Practice
All students should read the University's policy on good academic practice: http://www.st-andrews.ac.uk/students/rules/academicpractice
It offers guidance to avoid potential problems related to academic work such as: presentation of material as one’s own when it is not and academically inappropriate behaviour. Any work that is submitted for feedback and evaluation is liable for consideration under the University’s Good Academic Practice policy, irrespective of whether it carries credit towards your degree. All work submitted by students is expected to represent good academic practice. Full details of the policy can be found in the University Student Handbook.
TURNITIN is the software used by the University to detect whether any part of a piece of written work is copied from the internet, a journal article, a book, or a previous student’s piece of work. It has a very powerful search engine. Students who are unsure about the correct presentation of academic material should consult with the Sub-Honours Coordinator.
You should also refer to the Guide for Students:

Citation and Referencing
Sources for published material referred to should be clearly cited, and an alphabetical list of references must be provided. There should be a perfect match between citation in the text and the reference list at the end; all cited sources must be listed, and all references listed must be cited in the text. Referencing helps avoid plagiarism and also supports a strong scientific method by showing where ideas have come from and how your own ideas differ from or build on published work. There are several recognised methods of referencing. The most important point is that you must use a single system consistently and not mix your reference systems. We strongly recommend that you utilise the “Harvard Reference System” when submitting work as it is the system most commonly used in academic journals. The library website has more information on that subject:
http://www.st-andrews.ac.uk/library/information/furtherhelp/citingreferences/

Orientation/Pre-sessional Week
Orientation/Pre-sessional Week is an integral part of the University semester, even though no classes are scheduled during that time. It offers you an opportunity to prepare for classes by purchasing and beginning work on course material and attending induction meetings.

Scholarships, Bursaries & Awards
The University has a number of bursaries, scholarships, and awards for academic achievement each year (see the University Student Handbook for descriptions and details). The Department also presents Irving Prizes for Excellence in Field Work every year. These arise from a bequest from former students John and Aileen Irving. There is a medal for the top Earth Science student in First Year, and the Davidson Medal is awarded to the top Earth Science student in Second Year. Departmental prizes are included in your transcripts.

Student Responsibilities
Students are responsible for ensuring that their personal details are kept up to date and should make any changes online via the web at: http://www.st-andrews.ac.uk/students/

Earth Sciences follow the University’s Code of Practice for Quality in Teaching and Learning that every student should:
• recognise that it is his/her responsibility to familiarise him/herself with the aims and objectives and scope of a class before enrolment, to ensure that the class suits his/her interests and degree plans;
• regard enrolment in a class as a contractual agreement; this involves attendance at all activities scheduled for the class; attendance is not a casual matter, you should be there, as indicated in the section on Academic alert;
• arrive punctually for all activities scheduled for the class;
• inform lecturers where absence or late arrival is unavoidable;
• complete all preparatory work required of them;
• meet all deadlines for submission of assigned work, unless postponement has been agreed with the lecturer;
• consult his/her lecturer if in doubt about the appropriateness of, or reason for, a grade on an assigned piece of work;
• treat all departmental staff with courtesy.
• disconnect mobile telephones during lectures and laboratory classes
The Department follows the Quality Assurance Agency for Higher Education guideline that one credit is regarded as reflecting the learning outcomes achieved through 10 hours of ‘student effort’, which means lectures, practical classes, seminar attendance, field work, report writing, personal study and preparation for examination. That translates into an expectation that each student works at least a 40-hour week, with the time distributed among the various modules studied.

You should make yourself aware of the Senate Regulations and the key Codes of Practice and Rules that govern your studies and behaviour in St Andrews. These are all available on the University web page under the Sections on Academic Matters and Policy & Guidance.

The University regards both bullying and harassment as unacceptable. For more information and points of contact, see the University Student Handbook.

Staff appreciate that some students need to take paid employment during term-time. Having employment is not, however, a valid reason for missing classes, not attending field courses, for poor performance or late submission of assignments. Employment does reduce the time and energy available for your academic work, so keep the hours worked to a minimum.

Your University e-mail account is the official means of communication for the University and you are therefore reminded that you should read your e-mails at least every 48 hours (particularly during the academic year). You can arrange to have your University e-mail account automatically forwarded to your personal external account; if so, you must check regularly to make sure the forwarding is working.

Students with Disabilities
In accordance with the University’s equal opportunities policy, the Disability Discrimination Act 1995, and the Special Educational Needs & Disabilities Act (SENDA) of 2001, every effort will be made to work with students to overcome any academic problems that arise from disability. If you have advised the University of your specific disabilities, your needs will be automatically passed to module coordinators via the Disability Information Flow system.

In Case of Difficulty
Earth Sciences staff operate an ‘open door’ policy to students - you are welcome to come and talk to us at any time. If we cannot see you then, we'll arrange a time. General problems, queries and suggestions about the ES1000 and ES2000 modules should be taken to the Sub-Honours Co-ordinator.

For advice and support on any issue, including academic, financial, international, personal or health matters, or if you are unsure of who to go to for help, please contact the Advice and Support Centre, North Street, 01334 462020, theasc@st-and.ac.uk.

In some instances lecturers can spot when you are experiencing difficulty, but not all problems can be detected. For your own benefit you should inform the lecturer if you have particular difficulties with the work. If you have a complaint about some aspect of a module, talk to the lecturer or see the Module Coordinator. You can also raise the matter with your Class Rep on the Student-Staff Council.

Student Geological Society
This Society is organised by students and its function is to promote extra-curricular activities and social events, as well as provide support in your studies. GeolSoc organises field trips, trips to career events around the UK and to attend seminars in other Universities. By joining, you will be more involved in the Department and will meet new friends who have similar interests and can pass on their experiences of the degree course and the modules. You will also be able
to attend lectures by invited speakers, be part of an annual dinner-dance and sporting matches. Join the Society early and get involved in 1st Year.

**Maths Support Centre**

Students lacking confidence in their mathematical ability or having difficulty with any mathematical or statistical aspect of the course are encouraged to visit the University's Mathematics Support Centre, which provides one-to-one help with any mathematics-based problem and is run by experienced teachers of maths. See: [http://www.st-andrews.ac.uk/students/academic/advice/studyskillsandadvice/mathsandstatistica...](http://www.st-andrews.ac.uk/students/academic/advice/studyskillsandadvice/mathsandstatistica...)

The Centre is part of CAPOD (Centre for Academic, Professional, and Organisational Development), which supports skills training (including preparation for your career and getting a job after graduation). To find out more visit the following website:

[http://www.st-andrews.ac.uk/capod/](http://www.st-andrews.ac.uk/capod/)

**Getting Your Views**

We welcome your views on the teaching that takes place. You will be asked to complete anonymously questionnaires giving feedback on your opinions of the modules. This information is used to assess your view of staff performance and their modules, and to consider any modifications that might enhance teaching and learning. The data on the questionnaires form the basis of reports, compiled by the *Earth Science Quality Audit Officer*, used by the Earth Science Teaching Council to discuss where changes are required. This enables us to keep our standards of teaching high and to respond to issues jeopardising that. We rely on your help to do so, whether it is through the questionnaire, informal conversation with members of staff, or the Staff-Student Council.

The Staff-Student Council typically meets once per semester to discuss issues that could range from problems about modules or accommodation, to seeking student views on a proposal. The aims are to keep students informed about academic matters, to obtain their views on proposed changes, to respond quickly to their concerns, and to involve them in keeping standards high. The Student President is responsible for collecting the views of the students through the Year Representative and for organising Staff-Student Council meetings.