EXAM STUDY GUIDE

1. FORMAT OF THE EXAM

The G214 exam has four sections:

Section 1	78 marks	60 minutes	Optical Mineralogy
Section 2	16 marks	30 minutes	Classification of Igneous Rocks
Section 3	40 marks	50 minutes	Mineralogy and Petrology
Section 4	26 marks	40 minutes	Putting things togethers and the bigger picture
TOTAL	**160 Marks**	**3 hours duration**	

Section 1 has 2 questions. In Section 3 you are required to answer 4 out of the 6 questions. Section 2 and 4 both have one question each. You will need to bring a calculator with you to the examination but you are not permitted to bring a programable calculator.

GOOD ADVICE FOR ANY EXAM!

1. After reading the question make some quick short notes outlining the structure of your answer. This will help you to write appropriate answers and not waste time by having to rewrite bad answers

2. Don't include a lot of superfluous information. This makes it look as though you weren't sure what the answer was and hope that by writing as much as possible that you will hit on the right bit somewhere. It isn't looked on favourably by the examiner.

3. If you don't know the answer, try another question. Don't waste time trying to force yourself to remember an answer. Maybe something in a later question jogs your memory.

4. Include diagrams and sketches where possible, but remember elements such as scales, labels, headings, legends, north arrows and captions etc.

5. It is acceptable in the exam to write your answers in point form. This can often be a more effective means of communicating information quickly and there is less room for writing a non-sensical paragraph.

6. Always read back through your answer to make sure it makes sense. What you think you've written and what you have actually written may be very different. **THIS IS VERY IMPORTANT**

7. Check that you have mentioned all the points asked for in the question. For example if the question asks you to describe the pleochroism, birefringence, extinction angle and relief of a particular mineral, check that you mention each of these four points.

WHAT TO STUDY?

Below is a synopsis of the course covering all the material that may come up in the exam. Material not listed below will not be on the exam. If you are uncertain please come and ask. However, do not leave it till a couple of days before the exam as you may unexpectedly find me unavailable.

- Properties of light in minerals with specific reference to those properties that are important for mineral identification such as retardation, birefringence, pleochroism and extinction. Definitions are important
- The differences between isotropic and anisotropic minerals in terms of their optical properties and which classes of minerals are isotropic and which are anisotropic
- Different types of uniaxial and biaxial interference figures and what an interference figure represents including knowledge of the optical indicatrix
- The different optical properties of the major minerals and mineral groups looked at during practical work.
- Classification of igneous rocks, using the IUGS diagrams. Rock names based on the above classification systems and whole rock geochemical and mineral composition differences between important rock types.
- Characteristics of the ocean crust, important rock types and their mineralogical composition and alteration of the ocean crust
- Formation of cyclic units in layered igneous intrusions with specific preference to the Bushveld Complex and the mineralogical and textural changes that occur in the layered intrusion.
- Characteristics of different volcano types and the factors that influence eruption style.
- Mineralogy and texture of different igneous and metamorphic rocks, including compositional variations in minerals with solid solution in different rock types and the role of the phase rule in igneous and metamorphic systems.
- The differences between prograde, peak and retrograde metamorphism in terms of mineral assemblages and textures developed. The facies and isograd concepts in metamorphism, including the characteristics of different facies and the role of pressure, temperature and fluids in driving metamorphism.
- Metamorphism of pelites, particularly with respect to prograde Barrovian style metamorphism and variations thereof. Important mineralogical changes that occur.
- Metamorphism of blueschists and eclogites, particularly with respect to mineralogical development, and the influence of the pre-subduction history of the ocean crust