

## Diploma in Gemmology: Year 1

This Diploma in Scientific Studies (Gemmology) provides an introduction to the science of gemmology for people with a general interest in gemstones, as well as for those working in the jewellery and related sectors. The programme aims to provide the student with a broad introduction to the study of gemstones. It teaches a range of laboratory-based techniques used to identify gemstones and provides the student with hands-on experience in identification protocols using a comprehensive collection of gemstones. The programme also includes studies of typical geological settings of gemstones during lectures, practicals and fieldtrips to Connemara.

### **EOS101      *Geology and Gemstones***

An introduction to the basic principles of Geology; The Dynamic Earth; The Rock Cycle; Rock, Crystal and Mineral Kingdoms; Gemstones defined; The origin and geological settings of gemstones. Lectures and Practical.

**Assessment:** Continuous Assessment and Written & Practical Examination

**Weighting:** 5 ECTS

#### **Reading List**

**Earth: Portrait of a Planet**, Stephen Marshak (2004), Norton and Co.

**Understanding Earth**, Press and Siever, Freeman & Co., New York, ISBN 0-7167-2836-2

### **EOS102      *The Crystallography and Mineralogy of Gemstones***

An introduction to the morphology and symmetry in the seven crystal systems. Twinning. Symmetry manipulations. The chemical classification of minerals. The chemistry and mineralogy of gemstones. The physical properties of minerals and gemstones. Lectures and Practical.

**Assessment:** Continuous Assessment and Written & Practical Examination

**Weighting:** 5 ECTS

## **Reading List**

**Gemmology**, P. Read (2005) Elsevier

**Gemology**, Hurlbut and Kammerling (1991) Wiley, New York

**Gemstones of the World**, W. Schumann (1997) New York, Sterling Publication Co.

**Identification of Gemstones**, (2003), M. O'Donoghue & L. Joyner, Butterworth Heinemann

**Mineral Science**, Cornelius Klein, Wiley & Sons. ISBN 0-471-25177-1

## **EOS103      *The Optical Properties of Crystals – The Path to Gemstone Identification***

Introduction to the wave theory of light; Electromagnetic spectrum; Polarisation of light (Plane and Crossed Polarised Light); Refractive Index (RI); Refractometry; Isotropism and Anisotropism; Optical classification of crystals; The microscope. Double refraction in calcite; Absorption of light; Pleochroism - Dichroism & Trichroism; Crossed Polarised Light; Conoscopic light; Generation of interference figures; Uniaxial & Biaxial Interference figures and determination of sign. Lectures and practicals.

**Assessment:** Continuous Assessment and Written & Practical Examination

**Weighting:** 5 ECTS

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## ***Fieldtrips***

One-day (during Semester 2) fieldtrip to Connemara to study crystals and minerals in their natural settings.