

# Earth Sciences 1022B Course Outline: Earth Rocks!

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**Objectives:** We will study what the Earth is made of (minerals and rocks), how it works (plate tectonics), and how it affects us. Focus is on surface processes, landforms, resources of our planet – natural features and actions that we can see, including natural disasters such as earthquakes, volcanoes, landslides, tsunamis, and floods.

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No prerequisites; **Anti-requisites:** ES1070a/b, ES1081a/b; the former ES020, ES082a/b  
**Lectures:** Tu, Th 9<sup>30</sup>-10<sup>20</sup> am in Natural Sciences Room 1 (downstairs by the tunnels)  
**Labs:** 2hr slot: T11<sup>30</sup>-1<sup>30</sup>, 1<sup>30</sup>-3<sup>30</sup>, 6-8; Th10<sup>30</sup>-12<sup>30</sup>, 12<sup>30</sup>-2<sup>30</sup>, 2<sup>30</sup>-4<sup>30</sup>, 6-8; F9<sup>30</sup>-11<sup>30</sup>, 11<sup>30</sup>-1<sup>30</sup> in BGS1015  
**Instructor:** Dr S.R. Hicock BGS 1076; [shicock@uwo.ca](mailto:shicock@uwo.ca); <http://instruct.uwo.ca/earth-sci/1022/>  
**Recommended Text:** Earth (3<sup>rd</sup> Can Ed. 2012); no manuals or electronic devices required  
**Marks etc.:** weekly labs 10%, Feb lab quiz 10%, Feb midterm 20%, Mar lab exam 20%, April exam 40%; contact the Prof. if you miss a test; no electronic devices allowed in tests

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## Content

**Orientation:** course layout, marks; how Earth formed, global tectonics, the rock cycle  
**Minerals:** what they are, structures and bonds, common mineral groups and uses  
**Igneous rocks:** how they form, magma types, igneous textures, rock types and uses  
**Volcanoes:** how they erupt, resulting landforms and rock types; igneous intrusions  
**Weathering:** what it is, how it works, mineral and rock susceptibility, soil development  
**Sedimentary rocks:** how they form, sedimentary features, rock types and uses  
**Metamorphic rocks:** how they form, metamorphic textures, rock types and uses  
**Geologic time:** correlation, time gaps, dating methods, geologic column and time scale  
**Rock deformation:** stress and strain, rock strength, resulting structures and landforms  
**Earthquakes:** causes, protection, seismic waves, Earth's crust, mantle, and core  
**Ocean floor:** submarine volcanoes, continental shelves, coral islands, hot spots  
**Plate tectonics:** what it is, continental drift, sea floor spreading, plate boundaries  
**Mountain building:** where and how mountains form, isostasy, cratons and shield areas  
**Landslides:** where and why they happen, consequences, classification and protection  
**Streams:** the water cycle, stream flow, erosion, transport, deposition, and landforms  
**Groundwater:** distribution, movement, wells, springs, geysers, caves, and pollution  
**Glaciation:** glacier movement, erosion, transport, deposition, landforms, and causes  
**Wind:** wind erosion, transport, deposition, desert weathering, and effects of water  
**Coasts:** waves, currents, beaches, landforms, shoreline erosion and protection  
**Resources:** sources, formation, and common uses of energy and mineral resources

**Laboratory:** weekly lab exercises on minerals, rock types, strata, rock structures, maps

Scholastic offenses are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offense, at the following Web site: [http://www.uwo.ca/univsec/handbook/appeals/scholastic\\_discipline\\_undergrad.pdf](http://www.uwo.ca/univsec/handbook/appeals/scholastic_discipline_undergrad.pdf)

Accommodation for missed work worth less than 10% of the total course grade due to illness will not require medical documentation; instead, contact the professor and refer to the Policy on Accommodation for Medical Illness at <https://studentservices.uwo.ca/secure/index.cfm>

Please contact the professor if you require material in an alternate format, or any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111x82147 about an accommodation.