



Course Outline (Higher Education)

School:	School of Engineering, Information Technology and Physical Sciences
Course Title:	STRUCTURAL GEOLOGY
Course ID:	SCGEO2103
Credit Points:	15.00
Prerequisite(s):	(SCGEO1103)
Co-requisite(s):	Nil
Exclusion(s):	(SX618)
ASCED:	010703

Description of the Course :

This course is concerned with the deformation of rock in the Earth`s lithosphere, as viewed from multiple scales - the atomic scale to the tectonic plate scale. Students learn to recognize, map, and measure both brittle and ductile structures, and learn to perform a complete structural analysis from interpreting such structures (comprised of geometric, dynamic, kinematic, and tectonic analyses).

Grade Scheme: Graded (HD, D, C, etc.)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the course but gained a final mark of 45 per cent or above and submitted all major assessment tasks.

Program Level:

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
Introductory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Learning Outcomes:

Knowledge:

- K1.** Discuss the basic concepts of stress, strain, and deformation of rock materials
- K2.** Recognize and classify styles of deformation under varying conditions
- K3.** Define concepts of geometric, dynamic and kinematic structural analysis
- K4.** Relate tectonic structures to probable tectonic settings

Skills:

- S1.** Describe and interpret common geologic structures from micro to mega scale in both the lab and field
- S2.** Construct and interpret structural stereographic projections
- S3.** Interpret geological maps and create cross sections from different tectonic environments

Application of knowledge and skills:

- A1.** Analyze three-dimensional structures in the field with the aid of stereographic projections
- A2.** Demonstrate familiarity with structural field mapping
- A3.** Demonstrate research and communication skills

Course Content:

Topics may include:

- Stress, strain and deformation
- Components to a Structural Analysis: geometric, dynamic, kinematic and tectonic
- Brittle deformation and associated structures
- Ductile deformation and associated structures
- Metamorphic conditions, assemblages and fabrics
- Stereographic projections
- Field techniques for structural mapping and interpretation
- Whole-Earth structure and plate tectonics
- Extensional, convergence, collision, and strike-slip tectonics

Values:

- V1.** Appreciate the role of global tectonics in Earth history
- V2.** Develop a professional attitude to detailed geological analysis

Graduate Attributes

The Federation University FedUni graduate attributes (GA) are entrenched in the Higher Education Graduate Attributes Policy (LT1228). FedUni graduates develop these graduate attributes through their engagement in explicit learning and teaching and assessment tasks that are embedded in all FedUni programs. Graduate attribute attainment typically follows an incremental development process mapped through program progression. **One or more graduate attributes must be evident in the specified learning outcomes and assessment for each FedUni course, and all attributes must be directly assessed in each program**

Graduate attribute and descriptor	Development and acquisition of GAs in the course
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		Learning Outcomes (KSA)	Code A. Direct B. Indirect N/A Not addressed	Assessment task (AT#)	Code A. Certain B. Likely C. Possible N/A Not likely
GA 1 Thinkers	Our graduates are curious, reflective and critical. Able to analyse the world in a way that generates valued insights, they are change makers seeking and creating new solutions.	K1-K4, S1-S3, A1, A2	A	1, 2, 3	A
GA 2 Innovators	Our graduates have ideas and are able to realise their dreams. They think and act creatively to achieve and inspire positive change.	Not Applicable	Not applicable	Not applicable	Not applicable
GA 3 Citizens	Our graduates engage in socially and culturally appropriate ways to advance individual, community and global well-being. They are socially and environmentally aware, acting ethically, equitably and compassionately.	K4, S3, A2, A3	B	1,2	B
GA 4 Communicators	Our graduates create, exchange, impart and convey information, ideas, and concepts effectively. They are respectful, inclusive and empathetic towards their audience, and express thoughts, feelings and information in ways that help others to understand.	K4, S3, A3	A	1,2	A
GA 5 Leaders	Our graduates display and promote positive behaviours, and aspire to make a difference. They act with integrity, are receptive to alternatives and foster sustainable and resilient practices.	S2, A2	B	1,2	B

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K4., S1.-S3.	Practical application of key concepts	Practical exercises	30-40%
K3., K4., S1., S2., A1.-A3.	Structural analyses (fieldwork and interpretation)	Fieldwork reports	20-30%
K1.-K4., S1.-S3., A3.	Participation and comprehension of content.	Test(s)	30-50%

Adopted Reference Style: