



Course Syllabus (Academic Year 2020)
School of Interdisciplinary Studies, Kanchanaburi Campus, Mahidol University

1. **Course No. and Title** : KAGS 303 (Structural Geology Laboratory)
Credit (study hours) : 1(0-3-2)
2. **Program Name** : Bachelor of Science in Geosciences
3. **Course Module** : Required course (Year III)
Co-requisite : KAGS 301 (Structural geology)
Pre-requisite : KAGS 224 (Graphic and Field Methods in Geology) and
: KAGS 260 (Regional Geology Field Study)
4. **Class Semester** : 1st Semester 2nd Semester Academic Year 2020
5. **Class Schedule & Venue** : Wednesday, 9:00 – 12:00 (Online and classroom)
6. **Class Coordinator** : Narongsak Kaewdam Email: narongsak.kae@mahidol.ac.th

7. Course Description

General knowledges on rock structure features. Geological map represents the expression on the earth's surface of the underlying geological structure. For this reason, the ability to correctly interpret the relationships displayed on geological map relies heavily on a knowledge of the basic principles of structural geology. This course to construct basically field techniques on interpreting geologic map, three point problems and apparent dip, techniques on cross section and drawing rock structures, basic stereographic projection on geologic problems, rotation of axis and drilling problems, discontinuity and joint interpretation.

From basic structural geology knowledge tend to created Geologic map from software and any software for applied to related works and field of geoscience. Going on field work and collected data to analysis structural geology and interpreted to historical of process. For overview to study structural geology in Thailand and tectonic of geologic setting. To understand historical geology of Thailand looking in structural geology progress since Permo-Triassic to recent time that reached in tectonic setting of Thailand to formed geomorphology and occurrence landscapes in the present. In addition to test some of structural geology from sandbox to analyze progressing of pre-tectonic, syn-tectonic and post tectonic.

8. Course Objectives / Course Learning Outcomes (CLOs)

No.	Objectives/CLOs	Expected Skills / Knowledge			PLOs
		Specific	Generic	Knowledge	
8.1	Geologic Map		×	×	1
8.2	Section and stratigraphy	×			3

8.3	Three point problems, Apparent Dip & True Dip	×			2
8.4	Rock Deformation & Structures	×			1, 2
8.5	Stereographic Method on line and angle	×			3
8.6	Various rock structures: Unconformity, Fold, Faults	×			1, 2
8.7	Application case on Graphic and Stereographic Projection	×			4, 5

9. Class Instructor List

Name : Mr.Pramote Nontarak
Contact No. : 088-496-9366
Email : pmntr@hotmail.com

10 Course Outline

Week	Date	Contents	CLOs	Instructor's Names
1	1 Jul 20	Introduction and Fundamental of Geologic Map and structure, Plane and line		Mr. Pramote
2	15 Jul 20	Contour line: Topographic contour		Mr. Pramote
3	22 Jul 20	Contour line: Structure contour		Mr. Pramote
4	29 Jul 20	Concept on cross section		Mr. Pramote
5	5 Aug 20	Three Point Problem and Apparent Dip & True Dip		Mr. Pramote
6	19 Aug 20	Three Point Problem and Apparent Dip & True Dip (continue)		Mr. Pramote
7	26 Aug 20	Drill hole analysis		Mr. Pramote
8	2 Sep 20	Isopach and Isochore map		Mr. Pramote
9	Mid-term Examination			
10	16 Sep 20	Uniformly dipping bed - Unconformity		Mr. Pramote
11	23 Sep 20	Rock Structure-Folding		Mr. Pramote

12	30 Sep 20	Rock Structure-Fault		Mr. Pramote
13	7 Oct 20	Igneous structure		Mr. Pramote
14	14 Oct 20	Basic Stereographic Projection		Mr. Pramote
15	21 Oct 20	Basic Stereographic Projection (continue)		Mr. Pramote
16	28 Oct 20	Field work on Structural geology part I		Mr. Pramote
17	<i>Final Examination</i>			
18	Jan 21	Case study from field work		Mr. Pramote
19	Jan 21	Graphic method from fieldwork		Mr. Pramote
20	Jan 21	Graphic method from fieldwork (continue)		Mr. Pramote
21	Jan 21	Stereographic method from fieldwork		Mr. Pramote
22	Feb 21	Stereographic method from fieldwork (continue)		Mr. Pramote
23	Feb 21	GIS for Structural geology		Mr. Pramote
24	Feb 21	GIS for Structural geology (continue)		Mr. Pramote
25	Feb 21	Structural geology case presentation		Mr. Pramote
26	<i>Mid-term Examination</i>			

Week	Date	Contents	CLOs	Instructor's Names
27	Mar 21	Fold progress test		Mr. Pramote
28	Mar 21	Fold progress test (continue)		Mr. Pramote
29	Mar 21	Fault progress test		Mr. Pramote
30	Apr 21	Fault progress test (continue)		Mr. Pramote
31	Apr 21	Structural geology in Thailand		Mr. Pramote
32	Apr 21	Structural geology in Thailand (continue)		Mr. Pramote
33	Apr 21	Structural geology in Thailand presentation		Mr. Pramote
34	Final Examination			

**Please note that the schedule is subject to change.*

***10 July - 9 October 2020, teaching and learning at the classroom.*

11 Course Assessment

No.	Methods / Activities	Regulations	CLOs	Week	Weight Distribution (%)
11.1	Mid-term exam	Paper Assessment		* 9	15
11.2	Mid-term exam (2 nd)	Paper Assessment		* 26	15
11.3	Final exam	Paper Assessment		* 17	15
11.4	Final exam (2 nd)	Paper Assessment		* 34	15
11.5	Assignment	Homework			30
11.6	Class participation	None			10
				Total	100

**pending*

12 Grading System

Criterion-referenced evaluation

Grade	Score	Grade	Score	Grade	Score	Grade	Score
A	≥ 80 %	B	70 – 74.99%	C	60 – 64.99%	D	50 – 54.99%
B+	75 – 79.99%	C+	65 – 69.99%	D+	55 – 59.99%	F	< 50 %

Norm-referenced evaluation

**If use both criterion and norm-referenced evaluation, please tick two boxes.*

13 References

- 13.1 กรมทรัพยากรธรณี (2550) ธรณีวิทยาประเทศไทย พิมพ์ครั้งที่ 2 โรงพิมพ์ดอกเบญจ กทม.
- 13.2 เพ็ญตา ศาสตร์ักษ์ (2553) โครงสร้างและแผนที่ธรณีวิทยา ภาควิชาเทคโนโลยีธรณี ขอนแก่น.
- 13.3 สว่าง ตั้งชวาล (2555) ธรณีวิศวกรรมขั้นพื้นฐาน พิมพ์ครั้งที่ 6 สำนักพิมพ์ จุฬาฯ
- 13.4 Billings, M. P. (1972) Structural Geology: Third Edition. Prentice Hall.
- 13.5 Lisle, R. J. (2003) Geologic Structures and Maps: A Practical Guide (Revised Edition). Butterworth-Heinemann.

- 13.6 Phillips, F.C. (1971) *The Use of Stereographic Projection in Structural Geology: Third Edition*. Edward Arnold
- 13.7 Simpson, B. (1960) *Geological Map Exercises*. George Phillip & Son Limited.