



## Course Syllabus (Academic Year 2023)

School of Interdisciplinary Studies, Kanchanaburi Campus, Mahidol University

1. Course No. and Title : KAGS 305 Geohazards  
Credit (study hours) : .....2 (2-0-4).....
2. Program Name : Bachelor of Science Program in Geoscience
3. Course Module : Term 2/ Year 3  
Pre-requisite : KAGS 201 Principles of Geoscience
4. Class Semester : 2<sup>st</sup> Semester Academic Year 2023
5. Class Schedule & Venue : Wednesday (09.00-11.00) at Room 2216
6. Class Coordinator : Dr. Patchawee Nualkhao Tel: 0956324244
7. Course Description

ภัยธรรมชาติที่เกี่ยวข้องกับธรณีวิทยา การเฝ้าระวัง และการบรรเทาทุกข์ พืชภัยที่มีสาเหตุจากภายในโลก เช่น แผ่นดินไหว ภูเขาไฟระเบิด และพืชภัยที่มีสาเหตุจากภายนอก เช่น แผ่นดินถล่ม แผ่นดินทรุด แผ่นดินยุบ การกัดเซาะชายฝั่งทะเล น้ำท่วม การปนเปื้อนของชั้นน้ำบาดาล เป็นต้น

Natural hazards related to geology and their monitoring and mitigation: endogenic origin, earthquake hazards, volcanic eruption and exogenous origin; landslide, land subsidence, crust collapse, shoreline erosion, flooding, and groundwater contamination etc.

## 8. Course Objectives / Course Learning Outcomes (CLOs)

No.	Objectives / CLOs	Expected Skills / Knowledge		PLOs
		Specific	Generic	
8.1	Describe the physical and geological processes causing the different types of geohazards such as landslides, floods, tsunamis and earthquakes	Geomorphology Material Earth processes		4
8.2	Describe methods for quantifying hazard for the individual geohazards and factors controlling their uncertainty		Generous interactions in society	3, 4
8.3	Completed landslide hazard and risk analysis map	Mapping		1

## 9. Class Instructor List

9.1 Name: Dr. Songkhun Boonchaisuk Contact No. : 0805997690

9.2 Name: Dr. Patchawee Nualkhao Contact No. : 0956324244

## 10. Course Outline

Week	Date	Contents	Instructor's Names
1	Jan 10, 2024	Basic principles of earthquake I	Dr. Songkhun Boonchaisuk
2	Jan 17, 2024	Basic principles of earthquake II	Dr. Songkhun Boonchaisuk
3	Jan 24, 2024	Locating the source of an earthquake and magnitude calculation	Dr. Songkhun Boonchaisuk
4	Jan 31, 2024	Earthquake in Thailand	Dr. Songkhun Boonchaisuk
5	Feb 7, 2024	Seismicity model	Dr. Songkhun Boonchaisuk
6	Feb 14, 2024	Ground motion prediction equations	Dr. Songkhun Boonchaisuk
7	Feb 21, 2024	Basic Seismic hazard analysis	Dr. Songkhun Boonchaisuk
8	Feb 28, 2024	Probability seismic hazard analysis	Dr. Songkhun Boonchaisuk
9	Mid-term Examination (Mar 4-8, 2024)		
10	Mar 13, 2024	Basic Information About Landslides	Dr. Patchawee Nualkhao
11	Mar 20, 2024	Evaluating and Communicating Landslide Hazard	Dr. Patchawee Nualkhao
12	Mar 27, 2024	Mitigation Concepts and Approaches	Dr. Patchawee Nualkhao
13	Apr 3, 2024	Factors causing increases in slopes failure & Numerical Methods for Landslide Problems	Dr. Patchawee Nualkhao
14	Apr 10, 2024	Slope Stability	Dr. Patchawee Nualkhao
15	Apr 17, 2024	Modification by Inclusion and Confinement	Dr. Patchawee Nualkhao

16	Apr 24, 2024	Paleoearthquake	Dr. Patchawee Nualkhao
17	Final Examination (April 29-30, May 1-10, 2024)		

### 11. Course Assessment

No.	Methods / Activities	Regulations	Week	Weight Distribution (%)
11.1	Mid-term exam	- Content week 1-8 - Close book	9	30
11.2	Final exam	- Content week 10-16 - Close book - Faculty approved calculator	17	40
11.3	Quiz/Reports / Assignments	- Quizzes will be given in class and cover the content from the previous weeks. <b>There will be no make-up quizzes.</b>	1-16	20
11.4	Class participation	- Students should attend at least 80% of the course class.	1-16	10
			<b>Total</b>	<b>100</b>

### 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

Abbott, P. L., 2009, Natural Disaster, McGraw- Hill, 1221, Advenue of The Americas, New York, NY., 526 p.

Reichard, J. S., 2011, Environmental Geology, McGraw- Hill, Advenue of the Americas, New York, NY., p. 1- 155.

James S., and Reed Wicander Monroe, 2006, The Changing Earth. 4<sup>th</sup> Edition, Thomson

Brooks/Cole, Calle Magallnes, 2528015 Madrid Spain, 753 p.