

<b>Academic Year</b>	AY2017/18	<b>Semester</b>	2
<b>Course Coordinator</b>	Assistant Professor Susanna Jenkins		
<b>Course Code</b>	ES2801		
<b>Course Title</b>	Introduction to Natural Hazards		
<b>Pre-requisites</b>	None		
<b>No of AUs</b>	3		
<b>Contact Hours</b>	Total hours – 39 (Lecture – 12; class activities – 27)		
<b>Proposal Date</b>	31 May 2018		

### Course Aims

This is an introductory course that aims to provide you with background knowledge on the range of natural hazards that may affect Earth. You will learn about the geological and geographic setting of different natural hazards, the physical processes that create the hazard, their potential impacts and how or if the impacts can be mitigated. You will also carry individual studies of key hazardous sites and events and gain an insight into hazard and risk assessment, as well as a thorough understanding of the natural hazards threatening humans.

### Intended Learning Outcomes (ILO)

By the end of this course, you (as a student) would be able to:

1. Identify the range of natural hazards, and explain where they occur, why and how (LO1).
2. Formulate well-reasoned arguments about the assessment and management of past hazards and disasters, based on the literature and your new knowledge of hazards and impacts (LO2).
3. Articulate to others the hazards expected in any location around the world (LO3).

### Course Content

The class content will be organised as learning about the where and why, the physical processes (hazards), their impacts and any possible mitigation strategies for 8 different natural hazards: Landslide, Volcano, Earthquake, Tsunami, Flood, Typhoon, Climate, Wildfire and Extra-terrestrial. Each topic will include a one hour formal lecture and a two hour team-based activity. In addition to these classes, there will be i) an introductory class will present key terms and concepts around natural hazards, ii) student-led discussions on seminal past disasters, and iii) a final class on the issue of hazard pairing (different hazards occurring at the same or similar time) and risk assessment. Individual projects to research a pre-assigned case study location and present it to the class will also form part of the course.

**Assessment (includes both continuous and summative assessment)**

Component	Course LO Tested	Related Programme LO or Graduate Attributes	Weighting	Team/ Individual	Assessment Rubrics
1. Participation in class discussion	1,2	Knowledge (Programme LO 1), intellectual flexibility and critical thinking (PLO 2), passion and communication (PLO 3), interdisciplinary (PLO 7).	10%	Individual	Appendix 1
2. Preparation and presentation of Case study	3	Knowledge (PLO 1), intellectual flexibility and critical thinking PLO 2), passion and communication (PLO 3), interdisciplinary (PLO 7).	30%	Individual	Appendix 2
3. Four quizzes on the hazards and overall concepts	1	Knowledge (PLO 1).	15% each	Individual	N/A
Total			100%		

**Formative feedback**

Students will receive oral feedback for Component 1, scores and work through of correct answers for Component 3, and either written or oral feedback as appropriate for Component 2.

**Learning and Teaching approach**

Approach	How does this approach support students in achieving the learning outcomes?
Lecture	To effectively convey information on fundamental theories and key concepts and to bring all students up to similar levels of knowledge (Course LO1)
Interactive team-based activities	Various activities (discussion groups, debate, presentation, etc) to help students analyse, formulate and communicate a deep understanding of topics that are fundamental to natural hazard and risk assessment (CLO2, CLO3)

## Reading and References

- 1) Natural Hazards and Disasters (Paperback) by Donald Hyndman, David Hyndman ISBN 10: 1305581695 ISBN 13: 9781305581692 Publisher: Brooks Cole, 2016
- 2) A key element of this course is to train students to make effective use of the primary scientific literature, and so they will be assigned a small number of scientific articles, websites and review articles to read for certain weeks and will be expected to be prepared to discuss them in class.

## Course Policies and Student Responsibilities

### (1) General

Students are expected to complete all assigned pre-class readings and activities on time, attend all lectures and class discussions, and submit all scheduled assignments and tests by due dates. Students are expected to take responsibility to follow up with course notes, assignments and course related announcements for seminar sessions they have missed. Students are expected to participate in all discussions and activities.

### (2) Absenteeism

Absence from any part of the course without a valid reason will affect your overall course grade. Valid reasons include falling sick supported by a medical certificate. There will be limited make-up opportunities. If you miss a lecture or discussion group exercise you must inform me via email (susanna.jenkins@ntu.edu.sg) prior to the start of the class.

### (3) Compulsory Assignments

You are required to submit compulsory assignments on due dates, unless a valid reason is provided. Valid reasons include falling sick supported by a medical certificate.

## Academic Integrity

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values.

As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the [academic integrity website](#) for more information. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

## Course Instructors

Instructor	Office Location	Phone	Email
------------	-----------------	-------	-------

Susanna Jenkins	N2-01b-23	6592-7753	<a href="mailto:Susanna.Jenkins@ntu.edu.sg">Susanna.Jenkins@ntu.edu.sg</a>
-----------------	-----------	-----------	--

**Planned Weekly Schedule**

Week	Topic	Instructor	Course LO	Readings/ Activities
1 (Jan 14-19)	Introduction to key terms and concepts	Jenkins	1	Relevant chapter in main text book *
2 (Jan 22-26)	Landslide	Jenkins	1,2	“
3 (Jan 29 – Feb 2)	Volcano	Jenkins	1,2	“
4 (Feb 5-9)	Earthquake	TBD	1,2	“
5 (Feb 12-16)	<i>[Test on geological hazards]</i> Tsunami	Jenkins	1,2	“
6 (Feb 19-23)	Flood	Jenkins	1,2	“
7 (Feb 26 – Mar 1)	Typhoon	Jenkins	1,2	“
8 (Mar 11-15)	<i>[Test on water and wind hazards]</i> Climate	Jenkins	1,2	“
9 (Mar 18-22)	Wildfire	Jenkins	1,2	“
10 (Mar 26-29)	Extra-terrestrial	Jenkins	1,2	“
11 (Apr 1-6)	<i>[Test on other hazards]</i> Student led discussions on disasters	Jenkins	1,2	“
12 (Apr 8-12)	Presentations	Jenkins	3	“
13 (Apr 15-19)	Hazard pairing and risk assessment	Jenkins	1,2	“

\* NOTE: A suggested reading list will also be given to the students for certain weeks, and they will be expected to read it before that week’s discussion group exercise

**Appendix 1: Assessment Criteria for Participation in Class Discussion**

Criteria	Standard				
	A+ (Exceptional) A (Excellent)	A- (Very good) B+ (Good)	B (Average) B- (Satisfactory) C+ (Marginally satisfactory)	C (Bordering unsatisfactory) C- (Unsatisfactory)	D, F* (Deeply unsatisfactory)
Contribution to class discussion	Important; Meaningful	Meaningful	Some	Minimal	Very minimal to none
Capacity to articulate and present points of view	Very clear	Clear	Some	Limited	None
Respectful discussion where all students contribute and no-one dominates the conversation	Achieved	Achieved	Not consistently	Limited	No
Evidence of having read and assimilated the assigned reading	Yes	Yes	Some familiarity with the assigned reading	Little familiarity with the assigned reading	None
Arguments and debates about the topic, based on the literature and student's own insights and knowledge	Well-reasoned	Some evidence of reasoning	Some evidence of having considered the discussion topic	Little serious thought about the discussion topic	Unexplained or unjustified absences from discussions

**Appendix 2: Assessment Criteria for Preparation and Presentation of Case study**

Criteria	Standard				
	A+ (Exceptional) A (Excellent)	A- (Very good) B+ (Good)	B (Average) B- (Satisfactory) C+ (Marginally satisfactory)	C (Bordering unsatisfactory) C- (Unsatisfactory)	D, F* (Deeply unsatisfactory)
Identify the range of natural hazards that have or will affect the case study area.	Excellent ability	Very good ability	Satisfactory	Limited	Not able
Visuals (e.g. slides)	Outstanding; Well-structured, focused and effective	Very good; Reasonable structure and focus	Adequate; some capacity and focus	Inadequate; limited capacity and focus	Poor quality, difficult to follow; Not addressing the topic
Oral presentation	Convincing, well-structured and exciting	Reasonably clear and well-structured	Satisfactory	Lackluster; Poorly organised	Inadequate; Badly structured
Evidence of preparation and rehearsal	Exceptionally well-prepared	Well-prepared	Some	Marginal; Poor timing	Limited to none; Very poor timing
Questions for others	Thought-provoking questions; Showing understanding and engagement	Asked; Showing understanding and engagement	Some; Some understanding and engagement	None	None; Obvious lack of engagement
Answering of questions	Correct with critical insight	Correctly	Correctly	Mostly correctly	Not able

\*A failure to submit the visuals and/or a failure to deliver the oral presentation will result in a D, F.