University of Toronto
at Scarborough

2010-2011

" ENVIRONMENTAL HAZARDS"
(EES A05 H3 Y)

Instructor: Dr. Jovan R. Stefanovic **Office:** PO103 Room #116

Lecture: Tuesday 7 –10pm, AA-112

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T.A.s: Smriti Das
Maryam Ramin
Alexey Gudimov
Serguei Stremilov

Office: TBA

Office hours: TBA(on the Intranet soon)

Textbook: Natural Hazards: earth's processes as hazards, disasters and catastrophes, Canadian Ed., E. Keller, R. Blodgett and J. Clague, 2008, (also available on line – **see library catalogue** and on short term loan in the library).

Grading:		
	Assignments (2 assignments x 15%):	30%
	Mid-term Examination:	30%
	Final Examination:	40%

Intent of the course:

This course examines natural hazards that impact humans and ways that human activity impacts the natural environment. Natural disasters are the extreme of natural hazards in which a large amount of energy is released in short period of time with catastrophic consequences for life and infrastructure. Natural hazards become disasters when they interact with vulnerable communities. The course emphasizes Earth and atmospheric hazards. Dangers fuelled by Earth's internal energy are addressed in lectures 2 and 3 and are organized on a plate- tectonic theme, including earthquakes, tsunami and volcanic eruptions. The lectures discussing slope failure and snow avalanches address hazards powered by gravity. A lecture on subsidence, karst and thermokarst addresses other destructive hazards, including those resulting from dissolving limestone and melting permafrost. Some topics focus on the impacts of weather and climate – related environmental hazards. The energy source underlying these hazards is external energy from the Sun. These lectures include river flooding, tornados, thunderstorms, hurricanes and winter-related hazards. The last lecture examines the great dyings and impact mechanisms with asteroids and comets. The course intents to stimulate student interest in scientific topics, and makes it clear that the atmospheric and earth science are directly relevant to their daily lives.

Week	*LECTURE TOPICS*	
1.	Introduction to Environmental Hazards Video:Five Disasters Waiting to Happen	Sep. 14th
2.	Plate Tectonics and Earthquakes (Video: Plate Dynamics& Earthquake)	Sep. 21st
3.	Volcanoes: Activity and Hazards (Assignment #1 – Discussion)	Sep. 28th
4.	Slope Failures (Video: Mass Wasting)	Oct. 5th
5.	Subsidance, Karst and Thermokarst	Oct. 12th
6.	Rivers and Flooding	Oct. 19th
7.	Coastal Hazards	Oct. 26th
8.	Severe Weather (Assignment #2 – Discussion; Video: Tornado, Hurricane and Flood)	Nov. 2rd
9.	Winter Hazards (Snow avalanches)	Nov. 9th
10.	Climate Change	Nov. 16th
11.	Mass Extinctions and Extraterrestrial Hazards	Nov. 23rd
12.	Course review	Nov. 30th

ASSIGNMENTS

There are no tutorials in this course. TAs will hold office hours to help with assignments. See the Intranet to find out who is your TA. I would suggest you to attend office hours of your TA *(always the same TA)* regularly since she/he will mark your assignments. Students are encouraged to actively consult with the TA regarding any problems or questions about the preparation of the assignment. You will have two assignments during the term, assignment #1worth 15% and assignment #2 worth 15% of the final grade. You will be able to access the problem sheets on the Web at the times detailed below. Completed exercises must be placed in the box outside SW-511A, by 5 pm on the dates shown. More details on the assignments will be circulated during the term. Feel free to discuss the assignments with your classmates, but be sure to write the assignments using your own individual words and ideas. **Each student is expected to write independently and submit all assignments as their own work**, and to acknowledge with **citations** any personal communications which contributed ideas for their assignment.

ASSIGNMENTS SUBMITTED LATE WILL <u>NOT</u> BE ACCEPTED. EXTENSIOM WILL BE GRANTED ONLY WITH MEDICAL NOTE or under some very serious circumstances.

You should use a word processor for your written responses. Your document should conform to the following: 25.4 mm margins, single-spaced, 12-point print size. The document must bear a name, signature, student number, date and TA name. Calculations may be handwritten.

	On the INTRANET	**Submission Due**
Assignment #1	Sept. 28th	Oct. 20th
Assignment #2	Nov. 2rd	Nov. 17th

MID-TERM EXAMINATION

The 2-hour mid-term examination will be held during the mid-term period, exact time, date and rooms TBA. The exam will consist of multiple-choice and true-false questions and will be worth 30% of the final grade.

FINAL EXAMINATION

The 3-hour final examination will be held during the final examination period. The exam is worth 40% of the final grade for the course. It will be a combination of multiple choice, and true-false questions.

FURTHER READINGS

Alvarez,L.W.,Alvarez,W.,Asaro,F., and Michel, H.V.1980. *Extraterrestrial cause for Cretaceous-Tertiary extinction*. *Science* 208:1095-108

Arguado,E. and Burt,J.E.2002. *Understanding weather and climate*.2nd.ed. Upper Saddle River, NJ:Prentice Hall.

Baxter,P.J.2005.*Human Impacts of Volcanoes*. New York: Cambridge University Press.

Bolt, B.A.2004.*Earthquakes*, 5th ed. San Francisco: W.H. Freeman.

Christopherson, R.W.&Mary-Lousie Byrne.2006. *Geosystems An Introduction to Physical Geography*, Canadian Ed.

EnvironmentCanada.2002.*Blizzards*. http://www.pnr-rpn.ec.gc.ca/air/wintersevere/blizzards.en.html.

Jones,D.K.C.1992.*Landslide hazard assessment in the context of development*. In *Geohazards*,eds G.J.McCall, D.J.Laming, and S.C.Scott, New York: Chapman&Hall.

Komar,P.D.1998.*Beach processes and sedimentation*. 2nd. Ed. Upper Saddle River,NJ: Prentice Hall

Montgomery Carla W . 2003. *Environmental Geology*, 6th edition , New York: Mc Graw-Hill.

Smith,K. and Ward,R.1998. *Floods*. New York: John Wiley & Sons

Note:

Check INTRANET regularly. All announcements, lecture notes, assignments and midterm marks all other information will be posted on the intranet.