



**BCN 5589 U01C. HAZARDS MITIGATION AND PREPAREDNESS
COURSE SYLLABUS
Summer C, 2021**

Class Schedule: Monday 6:45 to 10:00 PM, at EC Room 2420, Engineering Campus
Section U01C, Class No. 51459
Graduate Course; BCN 5589
Summer C Term, May 10 – July 30, 2021

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COURSE OBJECTIVES

Engineering and technology does not inflate as a balloon, expanding human power over Nature evenly in all directions and at all scales. It grows like a sea urchin; their long spines of ability radiate out toward specific needs and desires.

When a hazardous event break as happened last year in the Caribbean Islands and in South Florida, or on board of the Deepwater Horizon oil rig in the Gulf of Mexico, or at the Fukushima Dai-ichi nuclear plant in Japan, or the collapse of the Twin Towers in New York there is no ameliorative engineering technique on a par to contain the forces of Nature..

This Course will address, describe and quantify in time and space the physical phenomena of hazards and all kind of disasters and we will study the challenging technologies to forecast the different hazards. Meteorology, hydrology and geology will explain their physical reality and assess the occurrence in view of designing and preparing the infrastructure with the most appropriate, prompt and cost effective reaction and response.

Construction Management, Civil Engineering and Architecture Graduates will learn the best management practices (BMP) in order to sustain and protect the human life and health of the population, infrastructures and residential, commercial, government and industrial buildings and properties.

Also, the Course will discuss the relevant federal, state and county organizations and regulation applicable to regulate and apply the correct and most appropriate actions conducing to prepare and mitigate the consequences and impact of the natural and man-made produced hazards, implemented with the most effective support from Construction Managers, Engineers and Architects.

Our target is that after you have successfully completed this Course you shall be able to:

- Define and use the terminology and concepts applicable to the practice of hazard preparedness and mitigation
- Know and understand the various laws, statues and regulations that provide the regulatory framework for the practice of hazard mitigation in the United States and also other countries
- Understand and apply methodology to assess the effectiveness, including, the cost-benefit of different proposed hazard mitigation options in the process of choosing among them for a specific occurrence
- Incorporate this concepts and methodologies in the daily practice of your work as engineers, managers and architects.

PREREQUISITES: Construction Management, Civil Engineering, Architecture or others with BS degrees.

REQUIRED TEXTBOOKS AND REFERENCES:

- [Hazard Mitigation and Preparedness: An Introductory Text for Emergency Management and Planning Professionals, Second Edition](#) , 2017
by [Anna K. Schwab](#) , [Dylan Sandler](#) , [David J. Brower](#). Hardcover.
- “Hazard Mitigation and Preparedness” Schwab, Anna K., Eschelbach, Katherine and Brower, David J. John Wiley and Sons Inc., New York, NY 2007
- “Disaster Response and Recovery: Strategies and Tactics for Resilience” 2nd Edition
by [David A. McEntire](#) . SBN-13: 978-1118673027, ISBN-10: 1118673026
- Classroom handouts (many!) mostly through Canvas

ATTENDANCE POLICY

You are advised to attend all classes, exams and presentation sessions.

STUDENT CONDUCT

We believe that a good level of communication is basic for your learning process and your participation in class is welcome and also active communication through Blackboard and e-mail. For a face to face conversation you are required to call for appointments to set a time of mutual convenience and provide the opportunity to talk about your questions, doubts and discussion of relevant topics and grades. All, these activities will be rewarded with an additional grade.

Acts of academic misconduct, impolite class interruptions, cheating, plagiarism, misrepresentation, will not be tolerated. If a student is found to be engaging in such a behavior will be referred to the University’s Student Academic Board. Misconduct procedures contained in the FIU Handbook will be applied and the consequences are spelled in their handbook.

The use of your cell-phone, i-pad, etc. during class sessions is not allowed except when student expect a justified emergency call.

EXAMINATIONS

There will be several Quizzes/home works, one Mid-term examination, one Final Examination, Oral Group Presentation and one Term Project Paper. All of these work assignments are required for successful completion of the Course. If you need to be absent of one class due to an event of a verifiable illness or emergency, please, get my approval ahead of time.

Your examinations, presentations and Term Papers will be scheduled on the Course outline and will include all the material covered as of the last examination. Quizzes/Home works will be due as announced through our communication media.

HOLIDAYS AND DISABLED STUDENTS ACCOMODATIONS

The College of Engineering abides to the University’s policy concerning religious holidays as stated in the University catalogue. Students may request to be excused from a class to observe a religious holiday for their particular faith.

Students with any kind of disabilities who may need special accommodations should register with the FIU Office of Disabilities Services (ODS), telephone (305) 348-3532 and I will accommodate them accordingly for their needs in a fair and equitable way.

GRADING POLICY.

The final grade for the course will be based on your understanding of the course material as evidenced of your performance on the examinations, class participation, topic's discussion, term project paper and presentation in consonance with the following:

The percentages show the relative weight placed in the activity during the course:

Class participation and Quizzes/HW		35%
Mid-term Examination (open book)	June 21	15%
Student Presentations (in team groups)	July 11	20%
Term Project Paper (by team groups) due	July 19	15%
Final Examination (open book)	July 26	15%

Course Syllabus and Dates

Date	Activity
May 10	Introduction and background. Course objectives and overview of course topics. Open discussion. Hazards and Disasters (Chapter 1)
May 17	Meteorological Hazards. Hurricanes Irma, Maria, Andrew, Katrina and Sandy (Ch.1,2)
May 24	Hurricanes and Tsunamis. Tornadoes (Joplin 2012, Moore 2013) (Ch.3) Wind impacts and building structures.
May 31	Memorial weekend (observed) no classes at FIU
June 7	ASCE wind calculation forces Fundamentals of Hydrology. Surges, Floods, Wild Fires and Blizzards. (Ch.4)
June 14	Fundamentals of Geology Basics: earthquakes, tsunamis, land-slides and coastal erosion Volcanic eruptions. (Ch. 4) Fire hazards and prevention. Wild fires. Man- made Hazards terrorism and technological hazards. (Ch.5):
June 21	Deep-water Horizon oil rig explosion and spill. Environmental Hazards. (CH. Group Term Paper subjects proposals due (3 to 4 students per group) Mid-term Exam
June 28	Nuclear power technology and radiation risks. Nuclear and the world energy matrix. (Ch.6 to 10 and 12).
July 5	Independence day weekend. Observed : No Classes at FIU

July 12	Preparation and mitigation technologies. Federal, State, County and community organizations, legislation on prevention, preparedness and mitigation (Ch.6 to 10 and 12.)
July 19	Student's presentations, groups 1 to 4 Final exam review Term project papers due today
July 26	Final Exam

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