

MET 4532 HURRICANES (ID 87628)
FLORIDA INTERNATIONAL UNIVERSITY
Fall 2009

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Time and location: 10:00-10:50, MWF, LC 301

Office Hours: MWF 11:00 AM-12:00 PM & TTH. 1:00-2:00 PM

Prerequisites: None in the formal sense, but you should have taken a college-level physical or environmental science.

Texts: K. A. Emanuel, *Divine Wind*, Oxford University Press, 296 pp, 2005, ISBN-13:978-0-19-514941-8.

Williams, Jack, and Bob Sheets: *Hurricane Watch: Forecasting the Deadliest Storms on Earth*, Vintage 1st Edition, 352 pp, 2001 ISBN-0-375-70390-X.

The bookstore should have copies. If not let me know. You can reach an on-line version of this syllabus at:

http://www.fiu.edu/~willough/met_4532/0_Syllabus.pdf

And links to course materials and notes:

http://www.fiu.edu/~willough/met_4532/0_LINKS.htm

Course description: Hurricane history, formation, structure, motion, and impacts for undergraduates and beginning graduate students in engineering, physical sciences or social sciences.

Course Goals and Objectives: This course covers the history and science of hurricanes. We will follow the texts' focus on hurricane history and meteorology, and I will introduce material on hurricanes as natural disasters, including their human and economic impacts.

Course organization and philosophy: I hope and expect that you are self-selected for motivation and interest in the atmosphere. The class is small enough for substantial interaction and individual attention. Make a genuine effort, and you should do well.

The texts are popular accounts of hurricane history and lore. *Emanuel*, though lavishly produced, contains a great deal of cutting-edge science, some excellent art, and much of the significant history. *Sheets and Williams* is more prosaic and more focused on the history, but it also contains a wealth of information. I'll add more physical and social science through the lectures. Please read the assignments before we cover them in class, and bring the book each time we meet. I welcome thoughtful questions.

I see meteorology as a descriptive natural science that often speaks the language of physics and mathematics. We will use some basic mathematics here, but the main focus will be on essential concepts. Attending the lectures, doing the reading, participating in discussion, and taking careful notes will be keys to success.

Participation	15%
Exam #1	20%
Exam #2	20%
Paper	20%
Final	25%
Total	100%

For the most part this is a lecture and concepts course. There will be two exams and a final. Format of the exams will be short answer, short (1-2 paragraph) essay, and draw-and-label a sketch. I am requiring a 2000-word paper. A good topic might be a “disaster” book report based on the bibliography that I’ll distribute, but I encourage other topics, particularly ones based upon your experiences. Paper, exams and final will contribute

Grading Scale	
100-90	A
89-80	B
79-70	C
69-60	D
below 60	F

to grades as indicated in the table on the left, and I plan to use a standard 90-80... scale, as shown to the right, for assigning letter grades.

A word about intellectual dishonesty, which I define as claiming someone else’s work or ideas as your own. I won’t tolerate it, and it is a certain way to have a bad outcome in MET 4532. I will use Turnitin originality screening software on submitted papers. A paper must pass Turnitin to receive a passing mark. I’ll provide the Turnitin URL, course number and password at the time you select topics. That said, everyone is trustworthy unless proven otherwise.

Topics and reading assignments. E is “*Divine Wind...*” and SW is “*Hurricane Watch*”. Please complete each assignment before class and come prepared to discuss it.

Class	Mon.	Day	Topic	Assignment
1	AUG	24	Introduction, <i>Kamikaze</i> , <i>Huricán</i>	E: 1-5, 18-22
2		26	Columbus, <i>La Floride</i> & Early history, 1780	E 30-32, 38-39, 63-66, SW: 3-30
3		28	Atmosphere Overview & <i>The Tempest</i>	Notes, E: 49-52
4		31	Hurricane Structure	E: 7-16,
5	SEP	2	More structure, 19 th Century, Samoa	SW: 31-60, E: 68-71
6		4	Sun and Sea	E: 23-28
		7	Labor Day, NO CLASS	
7		9	Convection	E: 34-36
8		11	Trade Winds	E: 41-47
9		14	Heat Engines	E: 54-61
		16	HEW Traveling, NO CLASS	
10		18	Intensity	E: 72-81
11		21	Galveston	E: 83-90 (Paper Topics Due)
12		23	Early 20 th Century	SW 61-95
13		25	Formation	E: 93-101
14		28	Exam Review	Classes 1-13
15		30	Exam #1	
16	OCT	2	Termination	E: 109-115
17		5	Motion	E: 125-134
18		7	<i>Hurricane</i> , Hurricanes of 1926 and	E: 103, 104-107, 117-123

			1928	
19		9	Hurricanes of 1935 and 1938	E: 136-144, 155-163
20		12	Storm Surge	E: 147-152
21		14	Waves	E: 165-171
22		16	1940s, <i>Typhoon</i> & Halsey	172-173, 174-180, 181
23		19	Rain & Hurricane Mitch	E: 182-192, 53
24		21	The 1950s and 1960s	SW: 125-141, 142-156
25		23	Hurricane flying	E: 193-202, 213-219, SW: 96-124
26		26	Exam #2 Review	Classes 14-26
27		28	Exam #2	
		30	HEW Traveling NO CLASS	
28	NOV	2	Hurricane remote sensing	Notes
29		4	Project STORMFURY	SW 157-178
30		6	Hurricane Forecasting	E: 227-238; SW 203-221
31		9	Camille & Cyclone of 1970	E: 205-211, 221-225
32		13	Tracy & Andrew	E: 244, 240-250; SW: 222-264
		11	Veteran's Day NO CLASS	
33		16	The seasons from Hell 2004-2005	Notes (Papers to Turnitin)
34		18	Hurricanes and climate	E: 252-261; SW: 265-283
35		20	Human impacts	Notes
36		23	Hurricane disasters	Notes (Final Papers Due)
37		25	Wind engineering	Notes
		26-28	Thanksgiving Break, NO CLASS	
38		30	Windstorm insurance	Notes
39	DEC	2	What does it all mean?	
40		5	Review	Cumulative
	TBA		FINAL EXAM	