

 <b>FLORIDA ATLANTIC UNIVERSITY</b>	<b>NEW COURSE PROPOSAL</b> <b>Graduate Programs</b>		UGPC Approval _____ UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	<b>Department</b> Biological Sciences  <b>College</b> CESCOS <i>(To obtain a course number, contact erudolph@fau.edu)</i>		
<b>Prefix</b> BSC  <b>Number</b> 6866	<i>(L = Lab Course; C = Combined Lecture/Lab; add if appropriate)</i> <b>Lab Code</b>	<b>Course Title</b> CLIMATE CHANGE: ECOSYSTEMS TO HUMAN HEALTH	
<b>Credits</b> <i>(Review Provost Memorandum)</i>  3	<b>Grading</b> <i>(Select One Option)</i>  <b>Regular</b> <input checked="" type="radio"/> <b>Sat/UnSat</b> <input type="radio"/>	<b>Course Description</b> <i>(Syllabus must be attached; see Guidelines)</i>  The course covers the physical science of climate change, how these changes modify the hydrological cycle and thermal regimes on a global scale, as well as current adaptation plans on the global, national and regional scale.	
<b>Effective Date</b> <i>(TERM &amp; YEAR)</i> Fall 2017	<b>Prerequisites</b> Graduate standing at FAU or permission of instructor	<b>Corequisites</b>	<b>Registration Controls</b> <i>(Major, College, Level)</i>
<i>Prerequisites, Corequisites and Registration Controls are enforced for all sections of course</i>			
<b>Minimum qualifications needed to teach course:</b> Member of the FAU graduate faculty and has a terminal degree in the subject area (or a closely related field.)		<b>List textbook information in syllabus or here</b>	
<b>Faculty Contact/Email/Phone</b> Dr. Koch- mkoch@fau.edu-7-3325		<b>List/Attach comments from departments affected by new course</b>	

<b>Approved by</b> Department Chair _____ College Curriculum Chair _____ College Dean _____ UGPC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____	<b>Date</b> 3-6-17 3-21-17 3/7/2017
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Email this form and syllabus to [UGPC@fau.edu](mailto:UGPC@fau.edu) one week before the UGPC meeting.

**COURSE SYLLABUS (Fall 2018)**  
**CLIMATE CHANGE: ECOSYSTEMS TO HUMAN HEALTH**  
BSC ##### CRN #####, 3 Credits

Meeting day: ### time (3 hr): ### - ###; Meeting room ### (Boca)  
Instructor: Dr. Marguerite Koch [mkoch@fau.edu](mailto:mkoch@fau.edu); 7-3325  
Department of Biological Sciences; Florida Atlantic University  
Office Hours: ##### and any time by appointment  
at Sanson Science (Biology building) Room 267

**Prerequisites:** Graduate standing at FAU or permission of instructor.

**Course Description/Student learning outcomes:** This three credit course is designed for graduate students interested in understanding the science and consequences of a rapidly changing climate. This course will cover the physical science of climate change, how these changes will modify the hydrological cycle and thermal regimes on a global scale, as well as current adaptation plans on the global, national and regional scale. There will also be a focus on how climate change is affecting the various biomes on earth. Students are expected to leave this course with an understanding of the current “state of the science” of climate change, as it is rapidly advancing, and appreciation for how it affects every sector of our infrastructure and economy, as well as major ecosystems of the world.

**Discussion Dates/Topics, Fall Semester 2018**

**All out of class readings are listed under the Topic below and can be found uploaded to Canvas.**

**Introduction** (introductions, class format, grading, expectations, readings)  
Introduction to IPCC working groups (videos)  
Outlining priority research topics for Biomes/Ecosystem Project

**Class Format:**

Global Climate Change Issues *In the News*  
What is New? Update from students and other lectures/seminars/workshops  
Paper discussions (On blackboard); Manuscripts, Government and NGO Documents  
Group Projects (Biome Review/Presentations/Discussion/Technical Brochure/Bibliography)

**(I) The Physical Science Basis Documenting Climate Change (Reading Homework in Parentheses)**

**The Physical Science of Climate Change: Overview and IPCC Assessment**

Introduction to Climate Change Science (IPCC 5<sup>th</sup> Report 2013 WG1 Chapter 1 pg 121 - 151)

**The Physical Science of Climate Change: Observations: Atmosphere and Surface**

(IPCC 5<sup>th</sup> Report 2013 WG1 Chapter 2 pg 159-235)

**The Physical Science of Climate Change: Observations: Ocean**

(IPCC 5<sup>th</sup> Report 2013 WG1 Chapter 3 pg 255-302)

**The Physical Science of Climate Change: Observations: Cryosphere**

(IPCC 5<sup>th</sup> Report 2013 WG1 Chapter 4 pg 317-368)

**The Physical Science of Climate Change: Information from Paleoclimate Archives**

(IPCC 5<sup>th</sup> Report 2013 WG1 Chapter 4 pg 383-435)

## II) The Human Element and Adaptation

### **Climate Change Impacts on the Human Built Environment by Sectors**

US Global Change Research Program: Global Change Impacts on the US Report (2014)

Sectors: Intro-pg 68; Water Resources-pgs 69-90, Energy Supply and Use-pgs 113-122, Transportation-pgs. 130-140, Agriculture- pgs. 150-163, Energy Water and Land Use- pgs. 257-274

### **Climate Change Impacts on the Human Built Environment by Sectors**

A meta-analysis of crop yield under climate change and adaptation. Challinor et al. (2014)

Stationarity Is Dead: Whither Water Management? Milly et al. (2008)

Power Forward 2.0 (CERES 2016)

### **Global Climate Change and Human Health**

Globalization, Climate Change, and Human Health. McMichael et al. (2013)

The Impacts of Climate Change on Human Health in the United States: A Scientific Assessment - U.S. Global Change Research Program (2016)

### **Human Adaptation to Global Climate Change**

US Global Change Research Program: Global Change Impacts on the US Report (2014)

Response Strategies: Decision Support pgs. 619-635, Mitigation pgs. 648-660, Adaptation pgs. 670-690

IPCC – Adaptation section in Working Group II – Summary for Policymakers pgs. 20 (start B-3) – 29.

## (III) The Ecological and Biological Response to a Changing Climate by Biome

(Readings, Presentation, Discussion - You will be given time in class to research your assigned Biome, but you will also be required to work on your presentations/brochures as homework to complete the assignments)

(1) Grassland Systems/ (2) Forest Systems/ (3) Desert Systems

(4) Freshwater Systems/ (5) Marine Systems (Non-Polar)/ (6) Tundra/Polar Systems

(7) Fisheries (Biogeography, OA and Hypoxia)/ (8) Community Dominance and Assisted Migration

(9) Agriculture Impacts on Climate/ (10) Alternative Energy Production (Centralized vs Decentralized)

(11) Sea Level Rise Coastal Wetlands/ (12) Urban Population Adaptation or Migration/ (13) South Florida Risks and Adaptation Potential/Actions as a Case Study

### **Final Exam**

Final Meeting and Discussion Rockström and Klum's book

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**Grading:** Class Participation (50%), Biome Presentations/Paper Group Project (10% presentation, 10% technical brochure with bibliography; each student participates in 2 Biomes; total 20% + 20%= 40%). Class Participation-come to class prepared and actively participate. Reading and Synthesis Discussion (10%) Johan Rockström and Mattias Klum “Big World, Small Planet: Abundance within Planetary Boundaries”

**Grading Scale:** The following scale will be used for computing the final grade.

A = 95 -100%	C = 73 - 75%
A- = 90 - 94%	C- = 70 - 72%
B+= 86 - 89%	D+ = 66 - 69%
B = 83 - 85%	D = 63 - 65%
B- = 80 - 82%	D- = 60 - 62%
C+= 76 - 79%	F = less than 60%

**Honor Code:** Students agree to adhere to the honor code, the text of which is at [http://wise.fau.edu/regulations/chapter4/4.001\\_Code\\_of\\_Academic\\_Integrity.pdf](http://wise.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf).

**Disability Act:** In compliance with the Americans with Disabilities Act (ADA), students who require reasonable accommodations due to a disability to properly execute coursework must register with the Office of Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses- Boca Raton, Davie, and Jupiter, however, disability services are available for students on all campuses. Religious Accommodations: Students who wish to be excused from coursework, class activities or examinations must notify the instructor in advance of their intention to participate in religious observation and request an excused absence.

**Classroom Etiquette Policy:** All laptops and phones should be closed and not in use unless you are following a digital version of the paper being discussed. During a guest speaker presentation, all electronics must be put away and full attention paid to the speaker. University policy on the use of electronic devices states: “In order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular telephones and pagers, are to be disabled in class sessions.” You may be asked to leave the class session for noncompliance.

**Attendance Policy:** Students will not be penalized for absences due to participation in University-approved activities, including athletic or scholastics teams, musical and theatrical performances, and debate activities or research-related meetings. These students will be allowed to make up missed work without any reduction in the student’s final course grade. Reasonable accommodation will also be made for students participating in a religious observance. Please get prior approval for missing classes.

**Make Up:** If any discussion day is missed a 2-4 page summary of the literature discussed will be turned in to the instructor before the next class meeting. Please let the instructor know that a class will be missed.

**Incomplete Grade:** A grade of Incomplete (“I”) is reserved for students who are passing a course but have not completed all the required work because of exceptional circumstances. A grade of “I” will only be given under certain conditions and in accordance with the academic policies and regulations put forward in FAU’s University Catalog. The student must show exceptional circumstances why requirements cannot be met. A request for an incomplete grade has to be made in writing with supporting documentation, where appropriate. As per university policy, an incomplete grade will only be given to a student who fulfills all of the following criteria:

- misses multiple exams or the final examination due to a legitimately documented emergency as defined by the FAU Academic Policies and Regulations
- has a grade of C or better

c. submits evidence of the emergency and signs an incomplete agreement.

**Safety:** No food or drinks are permitted in the lecture hall.

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**\*This syllabus applies to all sections taught by this instructor and is subject to change at any time by the instructor. Changes may be announced online via blackboard or verbally in class.**