Course Change Request

Date Submitted: 08/30/20 10:14 pm

Viewing: GGS 309 : Introduction to Weather ~~Meteorology~~ and Climate

Transfer Course(s): GGS L309

Last approved: 12/20/18 4:27 am

Last edit: 08/30/20 10:14 pm

Changes proposed by: nburtch

course

SC-BA-GEOG: Geography, BA
SC-BS-GEOG: Geography, BS
SC-BS-EVSC: Environmental Science, BS
ESCI: Earth Science Minor
GEOG: Geography Minor

Select modification type:

~~Simple~~

Substantial

Are you completing this form on someone else's behalf?

In Workflow

1. **Registrar-Courses:Title Change**
2. **GGS Chair**
3. **SC Curriculum Committee**
4. SC Associate Dean
5. Assoc Provost-Undergraduate
6. Registrar-Courses
7. Banner

Approval Path

1. 08/31/20 8:23 am Tory Sarro (vsarro): Approved for Registrar-Courses:Title Change
2. 10/08/20 3:11 pm Nathan Burtch (nburtch): Approved for GGS Chair

History

1. Dec 20, 2018 by Gregory Craft (gcraft)

No

Effective Term: Fall 2021

Subject Code: GGS - Geography & Geoinformation Science **Course Number:** 309

Bundled Courses:

Is this course replacing another course? No

Equivalent Courses:

Catalog Title: **Introduction to Weather** ~~Meteorology~~ and Climate

Banner Title: **Intro Weather** ~~Meteorology~~ and Climate

Will section titles vary by semester? No

Credits: 3

Schedule Type: Lecture

Hours of Lecture or Seminar per week: 3

Repeatable: May be only taken once for credit, limited to 3 attempts (N3)

Max Allowable Credits: 9

Default Grade Mode: Undergraduate Regular

Recommended Prerequisite(s):

GGS 102, 121, or equivalent, or permission of instructor.

Recommended Corequisite(s):

Required Prerequisite(s) / Corequisite(s) (Updates only):

Registrar's Office Use Only - Required Prerequisite(s)/Corequisite(s):

And/Or	(	Course/Test Code	Min Grade/Score	Academic Level	)	Concurrency?

Registration Restrictions (Updates only):

Registrar's Office Use Only - Registration Restrictions:

Field(s) of Study:

Class(es):

Level(s):

Degree(s):

School(s):

Catalog Description:

Foundations and elements ~~Elements~~ of **weather and climate;** ~~meteorology;~~ analysis of world distribution of **weather and climate** ~~meteorological~~ controls as bases of **global climate change and variation.** ~~regional climatic variations.~~

Justification:

The instruction of this course is focused on patterns of weather, especially the geographic distribution thereof, and not on traditional meteorology instruction on weather forecasting. This geographic perspective utilizes remote sensing technologies, and the "weather and climate" wording is used in sessions by NASA remote sensing programs.

Does this course cover material which crosses into another department? **Yes** ~~No~~

Impacted Departments:

Department
AOES - Atmospheric, Oceanic, & Earth Sciences
ESP - Environmental Science & Policy

Learning Outcomes:

Attach Syllabus

Additional Attachments

Specialized Course Categories:

Additional Comments:

~~N3 Update~~

Reviewer Comments

Key: 7392

GGS 309, Fall 2020

Online Course (Asynchronous)

Introduction to Weather and Climate

Course Information

Title: GGS309: Introduction to Weather and Climate

Instructor: Prof. John Qu
E-mail: jqu@gmu.edu
Office Hour: 10:30-11:45 AM (online) Mondays or make appointment

Course Description:

This course will introduce the students to the fundamental principles upon which the atmosphere and climate sciences are based and to provide quantitative description and interpretation of the wide range of atmospheric observing the atmosphere phenomena with an emphasis on sub-synoptic scales (i.e. weather and regional scale climate). This course engages students with real-world examples and a captivating narrative. One of the main goals of this course is not only to provide the basic knowledge of fundamentals of the weather and climate, but also to prepare students for the science of atmospheric modeling and simulations. This course is designed for both science majors and non-majors taking their first course in weather and climate sciences.

Prerequisites: MATH 214 and PHYS 262, or permission of instructor.

Detailed Schedule

Week one:	Introduction to the Atmosphere and Climate Science
Week two:	The Energy Cycle
Week three	Temperature *Quiz One*
Week four	Water in the Atmosphere
Week five	Observing the Atmosphere
Week six	Atmospheric Forces and Wind *Quiz Two*
Week seven 03/08	Global and Small Scale Winds *Mid-term*
Week eight	Atmosphere-Ocean Interactions: El Niño and Tropical Cyclones
Week nine	Air Masses and Fronts *Quiz Three*
Week ten	Extratropical Cyclones and Anticyclones
Week eleven	Thunderstorms and Tornadoes
Week twelve	Weather and Climate Forecasting *Quiz Four*
Week thirteen	Past and Present Climates
Week fourteen	Human Influences on Climate
Week fifteen	*Final Exam*

Grading

- Quizzes 20%
- Homework 20%
- Midterm 25%
- Final Exam 35%
  (A=90-100, B=80-89, C=70-79, D=60-69, F=<60)

Textbook:

"Meteorology: Understanding the Atmosphere", Third Edition, by Steven A. Ackerman and John A. Knox 2011, Jones & Bartlett Learning (2011),ISBN 9781449631758 (paperback edition) and ISBN 1449631754 (hardback), 578 pages.

Reference book:"Climatology", By Robert V. Rohli, Anthony J. Vega, Jones & Bartlett Learning (2011), Paperback - 432 pages - ISBN 0763791016

Other references: Selected publications will be posted on Blackboard

Honor code:

Students must follow the GMU Scholastic Honor Code. Copying homework (or quiz) is considered cheating.