Course Change Request

Date Submitted: 12/01/17 1:33 pm

Viewing: **ATMO 629 : Climate Change**

Last edit: 12/18/17 3:07 pm

Changes proposed by: korry

Catalog Pages referencing this course
- ATMO - Atmospheric Sciences
- Department of Atmospheric Sciences

Programs referencing this course
- CERT-CG41: Ocean Observing Systems - Certificate

Faculty Senate Number

Contact(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robert Korty</td>
<td><a href="mailto:korty@tamu.edu">korty@tamu.edu</a></td>
<td>9798479090</td>
</tr>
</tbody>
</table>

Rationale for Course

Edit

**Other**

Explain other rationale

This is to document that ATMO 629, when taught during one of the summer sessions (i.e., shortened compared to regular Fall/Spring semester), meets for same total hours and has same total instruction time in shortened format.

Course prefix | ATMO | Course number | 629 |
Department     | Atmospheric Sciences |
College/School | Geosciences |
Academic Level | Graduate |
Effective term | 2018-2019 |

Complete Course Title
Climate Change

Abbreviated Course Title
CLIMATE CHANGE

Catalog course description
Climate of the geological and recent past; methods of assessing climate and climatic change; mechanisms, models, theories, impact and prediction of climatic change.

Prerequisites and Restrictions
ATMO 324 or equivalent; approval of instructor.

Concurrent Enrollment
No

Should catalog prerequisites / concurrent enrollment be enforced?
No

Crosslistings
No

Crosslisted With

In Workflow
1. ATMO Department Head
2. Curricular Services Review
3. GE Committee Preparer GR
4. GE Committee Chair GR
5. GE College Dean GR
6. GC Preparer
7. GC Chair
8. Faculty Senate Preparer
9. Faculty Senate
10. Provost II
11. President
12. Curricular Services
13. Banner

Approval Path
1. 12/14/17 4:26 pm Ping Yang (pyang): Approved for ATMO Department Head
2. 12/18/17 3:07 pm Sandra Williams (sandra-williams): Approved for Curricular Services Review
3. 02/09/18 4:45 pm Roxanna Russell (rrussell): Approved for GE Committee Preparer GR
4. 02/09/18 4:50 pm Christian Brannstrom (cbbrannst): Approved for GE Committee Chair GR
5. 02/09/18 4:51 pm Christian Brannstrom (cbbrannst): Approved for GE College Dean GR
6. 02/16/18 12:48 pm LaRhesa Johnson (ljohnson): Approved for GC Preparer
7. 03/01/18 3:13 pm LaRhesa Johnson (ljohnson): Approved for GC Chair

https://nextcatalog.tamu.edu/courseleaf/approve/
ATMO 629: Climate Change

<table>
<thead>
<tr>
<th>Semester</th>
<th>3</th>
<th>Contact Hour(s) (per week):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit</td>
<td></td>
<td>Lecture: 3</td>
</tr>
<tr>
<td>Hour(s)</td>
<td></td>
<td>Lab: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other: 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total: 3</td>
</tr>
</tbody>
</table>

Repeatable for credit? No

Three-peat? No

CIP/Fund Code: 4004010002

Default Grade Mode: Letter Grade (G)

Alternate Grade Modes: Satisfactory/Unsatisfactory

Method of instruction: Lecture

Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education)

Yes

Learning Outcomes

Meets traditional face-to-face learning outcomes.

Describe how learning outcomes are met or provide justification why they are not met.

Course is taught 5 days a week during summer session for 95 minutes each session; meets same number of hours as when taught during regular fall/spring semester. Learning outcomes and evaluations of them are identical in summer.

Hours

Meets traditional face-to-face hours.

Describe how hours are met or provide justification why they are not met.

Course is taught 5 days a week during summer session; meets same number of hours as when taught during regular fall/spring semester.

Will this course be taught as a distance education course?

No

Is 100% of this course going to be taught in Texas?

Yes

Will classroom space be needed for this course?

Yes

This will be a required course or an elective course for the following programs:

Required (select program)

Elective (select program)

Program(s)

(PhD-ATMO) Doctor of Philosophy in Atmospheric Sciences

(MS-ATMO) Master of Science in Atmospheric Science

(PhD-ATMO) Doctor of Philosophy in Atmospheric Sciences

Course Syllabus

Syllabus: Upload syllabus
Upload syllabus  
- syllabus_atmo629.pdf
- syllabus_atmo629summer.pdf

Letters of support or other documentation

Additional information

Reviewer Comments
- Sandra Williams (sandra-williams) (11/14/17 7:28 pm): Rollback: As indicated on the form, please attach a traditional syllabus and a non-traditional syllabus to your request.
- Sandra Williams (sandra-williams) (12/18/17 3:07 pm): Update received.

Reported to state?

- No
Course title and number: ATMO 629 – Climate Change
Term: Fall 2017
Meeting times and location: MWF 1:50-2:40 OMB 1209

Course Description and Prerequisites

Prerequisite: ATMO 324 or equivalent; approval of instructor

Catalog description: Climate of the geological and recent past; methods of assessing climate and climatic change; mechanisms, models, theories, impact and prediction of climatic change.

Learning Outcomes or Course Objectives

• Explain fundamental forces and processes at work in climate science
• Interpret paleoclimatological proxies
• Explain processes of climate components: glaciers, radiation, chemistry, greenhouse effect
• Explain how feedbacks act in climate change
• Interpret and explain graphics used to communicate climate change
• Explain the impacts of climate change on water and energy resources

Instructor Information

Name: Gerald North
Telephone number: 979-845-8077
Email address: g-north@tamu.edu
Office hours: Office hours: Tuesdays and Thursdays 2:00-4:00 or by appointment.
Office location: O&M 1205 B

Textbook and/or Resource Material

PowerPoint slides and papers from the scientific literature will be supplied electronically

Grading Policies

Grades will be based on one midterm exam worth 50 points and one final exam worth 50 points. The course grade will follow the standard scale:
A: 90-100%
B: 80-89%
C: 70-79%
D: 60-69%
F: <60%

Major Course Assignment Dates

The midterm will be held in class on Friday, October 13. The Final exam will be held Tuesday, December 12 from 3:30 to 5:30 p.m.
Attendance and Make-up Policies

Students are required to fully and actively participate in each class meeting, and a grade of zero will be assigned for all assignments missed for unexcused absences. No make-up for work missed for unexcused absences will be allowed. Excused absences will follow the procedures and definitions of Student Rule 7 (http://student-rules.tamu.edu/rule07), and a schedule for turning in missed work for excused absences will be determined by arrangement with the instructor.

Course Topics, Calendar of Activities, Major Assignment Dates

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Required Reading and assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(8/28) Introduction to climate system; radiation, seasonal structure, circulation</td>
<td>Chapter 1</td>
</tr>
<tr>
<td>2</td>
<td>(9/4) Overview of climate models and their properties</td>
<td>Chapter 2</td>
</tr>
<tr>
<td>3</td>
<td>(9/11) Paleoclimate: deep time climates, icehouse and greenhouse states</td>
<td>Chapter 3</td>
</tr>
<tr>
<td>4</td>
<td>(9/18) Paleoclimate continued: Milankovitch theory, sea floor cores</td>
<td>Chapter 3</td>
</tr>
<tr>
<td>5</td>
<td>(9/25) Glaciers and ice sheets: Antarctica, Greenland, mass loss</td>
<td>Chapter 4</td>
</tr>
<tr>
<td>6</td>
<td>(10/2) Holocene climate: Hockey stick curve, bore holes, dendroclimatology</td>
<td>Chapter 5</td>
</tr>
<tr>
<td>7</td>
<td>(10/9) Chemistry and Climate: major chemical species and concentrations</td>
<td>Chapter 6; midterm on October 13</td>
</tr>
<tr>
<td>8</td>
<td>(10/16) Oceans and climate: time scales, ocean chemistry, thermocline, circulation</td>
<td>Chapter 7</td>
</tr>
<tr>
<td>9</td>
<td>(10/23) Carbon cycle: CO2 record; carbon on land and in ocean; models of earth system; biogeochemistry cycles</td>
<td>Chapter 8</td>
</tr>
<tr>
<td>10</td>
<td>(10/30) Radiation and greenhouse effect; aerosol optical properties</td>
<td>Chapter 9</td>
</tr>
<tr>
<td>11</td>
<td>(11/6) Climate models and feedbacks: water vapor, ice, clouds; GCM comparisons</td>
<td>Chapter 10</td>
</tr>
<tr>
<td>12</td>
<td>(11/13) Sea level and changes; how it is measured; climate projections</td>
<td>Chapter 11</td>
</tr>
<tr>
<td>13</td>
<td>(11/20; no classes WF for Thanksgiving)</td>
<td>Stratospheric circulation</td>
</tr>
<tr>
<td>14</td>
<td>(11/27) Hydrology and water cycle: rivers, soil moisture, ground water</td>
<td>Chapter 12</td>
</tr>
<tr>
<td>15</td>
<td>(12/4; meetings on MW [redefined days])</td>
<td>Energy, water, and climate: history of energy, its cost, and how three interact</td>
</tr>
</tbody>
</table>

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.
Academic Integrity

For additional information please visit: http://aggiehonor.tamu.edu

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”
Course title and number ATMO 629 – Climate Change
Term Fall 2017
Meeting times and location MTWRF 10:00-11:35 OMB 206

Course Description and Prerequisites

Prerequisite: ATMO 324 or equivalent; approval of instructor

Catalog description: Climate of the geological and recent past; methods of assessing climate and climatic change; mechanisms, models, theories, impact and prediction of climatic change.

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<td>Chapter 1</td>
</tr>
<tr>
<td>2 (6/4)</td>
<td>Paleoclimate: deep time climates, icehouse and greenhouse states Milankovitch theory, sea floor cores Glaciers and ice sheets: Antarctica, Greenland, mass loss Holocene climate: Hockey stick curve, bore holes, dendroclimatology</td>
<td>Chapter 2</td>
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<td>3 (6/11)</td>
<td>Chemistry and Climate: major chemical species and concentrations Oceans and climate: time scales, ocean chemistry, thermocline, circulation Carbon cycle: CO2 record; carbon on land and in ocean; models of earth system; biogeochemistry cycles</td>
<td>Chapter 3</td>
</tr>
<tr>
<td>4 (6/18)</td>
<td>Radiation and greenhouse effect; aerosol optical properties Climate models and feedbacks: water vapor, ice, clouds; GCM comparisons Sea level and changes; how it is measured; climate projections</td>
<td>Chapter 4</td>
</tr>
<tr>
<td>5 (6/25)</td>
<td>Stratospheric circulation Hydrology and water cycle: rivers, soil moisture, ground water Energy, water, and climate: history of energy, its cost, and how three interact</td>
<td>Chapter 5</td>
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