RIVER FORMS AND PROCESSES, GEO 4281/GEO6282 Spring 2021, 3018 Turlington Hall (M 4-5 or 10:40-12:35, W4 or 10:40-11:30)

Instructor: Dr. Joann MossaOffice Location: 3129 TurlingtonE-mail: mossa@ufl.edu (preferred mode)Phone: 294-7510Office Hours: By Zoom, W-Th 1:00-2:00 PM or other

Class Meetings will mostly be live. There will be some local outings

CATALOG DESCRIPTION: Examines the nature and variety of fluvial processes and the origin and modification of fluvial landforms; includes discussion of environmental changes in rivers and human activities in drainage basins

COURSE REQUIREMENTS AND/OR RECOMMENDATIONS:

Physical Geography (GEO 2200) or Physical Geology (GLY 2010) or equivalent or permission

COURSE MATERIALS

Canvas, <u>http://elearning.ufl.edu</u>, includes readings, power points, data sets, etc. You will be doing several data analysis projects with Excel, and Google Earth. Excel is available to students through a UF site license, UF Apps, and Canvas and is installed on many computers in the department and around campus. Staff at the Hub and CSE will be able to assist you with problems with installation.

BASIC TEACHING APPROACH

- Want to create a positive learning environment
- Lots of videos and visuals
- Variety of assignments, experiential, applied, visual
- Some readings, posted on Canvas (no \$ out of pocket for books)
- Bring your questions to assist in understanding and recollection
- I like to get to know my students and try to be helpful and encouraging
- Questions welcome, will come in both directions
- Attendance/responsible behavior encouraged by in-class assignments
- Many items graded (2-20% of grade apiece). You will not be anonymous.
- If you tend to miss classes, want to be anonymous, or prefer exams to assignments, give consideration to dropping this class in favor of one more suited to your learning style

ASSIGNMENTS, ATTENDANCE AND MAKE-UP POLICY

Class attendance is highly recommended, and missed classes are likely to impact your grade due to the number of in-class assignments. In certain circumstances (family emergency, illness), I will work with students who need to make-up an in-class assignment out of class.

IMPORTANT DATES:

MLK January 17 Spring Break March 7-11 Any special activities or cancellations will be announced in class and/or on Canvas

GRADING AND ASSIGNMENTS

A = 93 or above; A- = 90-92.9; B+ = 87-89.9; B = 83-86.9; B- = 80-82.9; C+ = 77-79.9; C = 70-76.9; C- = 67-69.9; D+ = 65-66.9; D = 60-64.9; D- = 57-59.9; E = < 57 https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

WEEKLY WORK

Each week I will send an announcement in Canvas (usually on Tuesdays), about what is due on Sunday night. Some work will be due on Tuesday or Wednesday if we did an activity in class. We will spend some class time discussing what works best for the class.

Approximate Grade Breakdown Summary

Assignment Type	Points or percentage
Worksheets or Open Book Quizzes in Canvas, typically 10 to 20 pts.	~20%
Mini-assignments: Video sheets, data interpretation, Google Earth,	~40%
discussion comments in Canvas, typically 10 to 30pts.	
Critical Thinking Assignments: Spreadsheets, article reviews, 30 to 50 pts	~30%
Final Project and Presentation, 100 pts	~10%
Total	100%

WORKSHEETS OR OPEN BOOK MINI-QUIZZES IN CANVAS (~20%): Quizzes usually to be submitted on Sundays following introduction of class content. Open Book, Due Sunday PM, Mostly 10-20 pts., Total ~20%

MINI-ASSIGNMENTS (40%)

- **BREAKOUT ASSIGNMENTS AND ACTIVITIES:** Usually in-class, Tuesdays, paired or group activities involving critical thinking, data interpretation, Jeopardy and escape room
- IN-CLASS AND SHORT TAKE-HOME ASSIGNMENTS: Video worksheets, Map and data analysis assignments regarding fluvial systems, working with data through problembased learning such as drainage basin delineation, Network analysis for connectivity, Assessment of Q data and hysteresis loops of stage and Q, Velocity-area computations with the mid-section and mean-section method, plotting channel cross sections, channel geometry changes using varied data sources, data extraction from USACE hydrographic surveys to examine longitudinal profiles and riffle-pool morphology, Google Earth assignments, field trip participation during class period (if allowed w/social distancing)

CRITICAL THINKING ASSIGNMENTS (~30%): spreadsheet and journal article reviews designed to assist in learning terminology, find and interpret data sources, use thinking and questioning skills, analyze data

- SPREADSHEET ASSIGNMENTS: We will do at multiple spreadsheet assignments involving finding, analyzing, and graphing data as if you were assisting a water manager. We will find data from agencies including USGS and NOAA and learn how to manipulated it in different ways, such as graphing, sorting, searching, and more. We will make streamflow stripes, flow duration curves, flood frequency curves and sediment rating curves and more. You will learn some cool tricks in Excel that might help with future work, whatever your profession, 30-50 pts each
- JOURNAL ARTICLE REVIEWS (4 total, for grad students): At the end of each quarter (Drainage Basins and Basin Hydrology, Channel Hydrology, Sediments, Channel Form and Change) we will set aside time for grad students to share their review in class. Your main goal is to review the topic, summarize everything and present a clear understanding of the topic. It involves: 1) Cite journal or report with author, date, title, journal, volume, or website according to a standard convention (APA); 2) For each article, compose a very basic two sentence summary to get the major thrust of the paper: "The author's purpose in writing the article was..." "The author concluded...."; 3) List what struck you as being the four or five most important points in the article using your own words. Go beyond the author's conclusions or the abstract; 4) Find one thought-provoking quote from the article that will generate discussion; followed by a brief response, statement, or question of your own about the quote to provoke discussion; 5) Select an important figure or table from the article. Briefly state, and be prepared to discuss in class, why you think the figure or table is especially meaningful or interesting. If your article does not have one, write N/A; 6) What is the theoretical and applied significance of this article? What (if anything) was interesting or innovative about the paper?; 7) Come up with one thought-provoking question related to each article and express your own thoughts about this question. The class portal has some articles from which readings can be chosen. Students can start there to select articles for review or find readings outside of the repository and review with instructor permission. We will continue to add to the repository over the semester. Two students should not review the same article, so students will declare selection in Canvas posting when an article is assigned. You can save or upload your review as a Word or Google *.doc or Power Point *.ppt, 30-40 pts each

INDIVIDUAL OR GROUP PROJECT (10%): This can be an individual (usually grads) or a group (usually undergrads) data analysis or research-based or project involving spreadsheets or GIS, or a video project focused on river forms and processes. I will be happy to assist with ideas and data sources. We will discuss multiple options as the semester progresses, and you will share your result with the class. Due Date: mid-April

INSTRUCTIONAL METHODS: In this course, much of the learning is done through assignments and discussions that involve data analysis, critical thinking, and synthesizing information.

GENERAL OUTLINE: COURSE TOPICS

Week 1: Background and Overview

- Introduction to Class in an Online Setting
- Background to drainage basins and rivers

TYPICAL ASSIGNMENTS

• Worksheets or Mini-quiz

BREAKOUT ASSIGNMENTS

• Group Hydrograph interpretation

VIDEOS

- Watersheds, Rivers and Floodplains, <u>https://www.youtube.com/watch?v=ButQspZX2yA&list=PLADFiMUo5Nk60U9Ee56bn2e</u> <u>zPgp6jDD03</u> (Source: Iowa State University, 2014, ~ 8m)
- Fluvial Processes How Rivers Form (~7 m) <u>https://www.youtube.com/watch?v=ewJimXu3ZLo</u>
- Colorado River I Am Red (~3 m) <u>https://www.youtube.com/watch?v=mqYcC7jEe44&pbjreload=101</u>

READINGS

• Introduction, Chapter 1, p. 1-9, Charlton, R. (2008). Fundamentals of fluvial geomorphology. Routledge.

Weeks 2: Basics of Drainage Systems

- Drainage basins and drainage area
- Drainage networks and patterns

TYPICAL ASSIGNMENTS

- Mini-Quizzes
- Applying drainage basin delineation from topographic maps
- Drainage basin delineation with Stream Stats
- Stream order designation

BREAKOUT ASSIGNMENTS

• **TBA**

VIDEOS

- Theme: Nature altering drainage networks
- Amazon River pirating water from neighboring Rio Orinoco (~2 m) <u>https://www.youtube.com/watch?v=2vUYpIT3XeE</u>
- When a River Goes Missing, It's Kind of a Big Deal (~3 m) <u>https://www.youtube.com/watch?v=s42dVrSoyQc</u>
- Theme: Humans altering drainage networks
- Lost Rivers trailer (~3m) <u>https://www.youtube.com/watch?v=Tflb4Fws3lc</u> (Amazon Prime, https://www.amazon.com/Lost-Rivers-Caroline-B%C3%A2cle/dp/B00XEJXUWY)
- The Colorado River Aqueduct (~3m), <u>https://www.youtube.com/watch?v=O-3jAQ5sd9g</u>

OPTIONAL HOW-TO AND HISTORICAL VIDEOS

- Hydrology: Watershed Delineation Example (~ 5m) https://www.youtube.com/watch?v=ajF0DsuuY4k&t=54s
- Deriving River Network & Catchments from a DEM using QGIS (~25 m) <u>https://www.youtube.com/watch?v=xwiHQImEEjw</u>
- Complete History of the Los Angeles Aqueduct (~19 m) <u>https://www.youtube.com/watch?v=XdhEZZKPqWw</u>

READINGS

• The Fluvial System, Chapter 2, p. 10-20, Charlton, R. (2008). Fundamentals of fluvial geomorphology. Routledge.

Week 3: Basin Hydrology and Hydrographs: Natural and Human Influences

- Background hydrology
- Natural hydrograph influences: scale, snowmelt, ice, tides
- Anthropogenic influences on hydrographs: land use, dams and reservoirs

TYPICAL ASSIGNMENTS

- Mini-Quizzes
- Hydrograph Interpretations
- Multi-scalar hydrograph
- Map and Google Earth assignment of rivers and drainage systems
- Animated gif

BREAKOUT ASSIGNMENTS

• TBA

VIDEOS

- How to Read the Hydrograph (~5 m), <u>https://www.youtube.com/watch?v=42D_7ahJypU</u>
- The Flood/Storm Hydrograph River Discharge GCSE A Level Geography Revision (~7m) https://www.youtube.com/watch?v=gb9JvFfo3vc
- Understanding Environmental Flows (~3m) <u>https://www.youtube.com/watch?v=cbUrrYq9BmU</u>

OPTIONAL VIDEOS: Understanding Different Rivers

- Ice Road Kuskokwim Ice Road Bethel to Akiak, Alaska 2010.mp4 (~5m), <u>https://www.youtube.com/watch?v= vSQMtM6-Rg&t=173s</u>
- North Saskatchewan River Ice April 25th, 2020 (~2m), <u>https://www.youtube.com/watch?v=PNFicMygpDw</u>

READINGS

• The Fluvial System, Chapter 2, p. 10-20, Charlton, R. (2008). Fundamentals of fluvial geomorphology. Routledge.

Week 4 Channel Processes, Stage

- Stage
- Stage-Q relations

TYPICAL ASSIGNMENTS

- Mini-Quizzes
- Working with USGS data
 - Streamflow and stage stripes
 - Stage-discharge rating curves
 - o hysteresis loops of stage and Q

BREAKOUT ASSIGNMENTS

• TBA

VIDEOS

- A USGS guide for finding and interpreting high-water marks (~17m) <u>https://www.youtube.com/watch?v=uZYRQLMcVOA&t=110s</u>
- Flood! (about the Mississippi River flood of 1993 and Stage Hydrographs)

OPTIONAL VIDEOS

• Streamgages: The Silent Superhero (~5 m), <u>https://www.youtube.com/watch?v=9H-</u> <u>OA3nJabM&list=PLfTUZSONTrFF9n3di0Qs4llU_RwYdcj1d&index=5</u>

- How streamflow is Measured: <u>https://www.usgs.gov/special-topic/water-science-school/science/how-streamflow-measured?qt-science_center_objects=0#qt-science_center_objects</u>
- How Does a U.S. Geological Survey Streamgage Work? <u>https://pubs.usgs.gov/fs/2011/3001/pdf/fs2011-3001.pdf</u>

Weeks 5 and 6: Channel Processes, Velocity and Discharge

- Velocity
- Discharge & Measurement

TYPICAL ASSIGNMENTS

- Mini-Quizzes
- Working with USGS data
 - Streamflow and stage stripes
 - Stage-discharge rating curves
 - hysteresis loops of stage and Q

BREAKOUT ASSIGNMENTS

• TBA

VIDEOS, VELOCITY AND BACKGROUND

- Streamflow Measurement (San Pedro River 2008) (~5 m), <u>https://www.youtube.com/watch?v=8NfZfHy-Bfc</u>
- Redington Stream Flow (~2 m) <u>https://www.youtube.com/watch?v= k1BTDjZfbU&t=9s</u>

VIDEOS, DISCHARGE AND CURRENT METER MEASUREMENT

 Stream Discharge Measurement (~12m) <u>https://www.youtube.com/watch?v=9MpyTopzon8</u>

OPTIONAL VIDEOS

 River Geomorphology (51) - Underwater views of turbulence and fish (~1m) <u>https://www.youtube.com/watch?v=QK50vB6SJvQ&list=PLVa74th2F4P9p-mj-KIrlls8D5l6D1tb-&index=51</u>

- The Flow Regime, Chapter 3, p. 21-36, Charlton, R. (2008). Fundamentals of fluvial geomorphology. Routledge.
- Flow in Channels, Chapter 6, p. 69-92, Charlton, R. (2008). Fundamentals of fluvial geomorphology. Routledge.

Weeks 7 and 8: Flood and Drought Analysis

- Flood and Drought Analysis
- Why extremes matter
- Flow duration curves
- Flood frequency analysis

TYPICAL ASSIGNMENTS

- Mini-Quizzes
- Working with USGS data
 - Flow duration curves and dimensionless flow duration curves
 - Flood frequency analysis, 100-Year Flood investigation <u>https://www.usgs.gov/atom/99426</u>
- Jeopardy

BREAKOUT ASSIGNMENTS

• TBA

VIDEOS

 How "levee wars" are making floods worse (~7 m), <u>https://www.youtube.com/watch?v=LTv6RkFnelM&list=PLfTUZSONTrFF9n3di0Qs4llU_R</u> <u>wYdcj1d&index=23</u>

OPTIONAL VIDEOS

 Flood Frequency Analysis Basics (~14 m), <u>https://www.youtube.com/watch?v=Nlzjk8um65E&t=264s</u>

- U.S. Geological Survey, Fact Sheet 076-03, Effects of Urban Development on Floods, C. P. Konrad, <u>https://pubs.usgs.gov/fs/fs07603/</u>
- Robert R. Holmes, Jr. and Karen Dinicola, 2010, 100-Year Flood–It's All About Chance: Haven't we already had one this century? <u>https://pubs.usgs.gov/gip/106/pdf/100-year-flood_041210web.pdf</u>

Week 9: Hillslope and Bank Erosion, Sediment Production

- Hillslope Erosion
- Bank Erosion

TYPICAL ASSIGNMENTS

- Mini-Quizzes
- Mapping gullies from Google earth

BREAKOUT ASSIGNMENTS

• TBA

VIDEOS

- Erosion River Processes and Landforms (Preview) (~2m) <u>https://www.youtube.com/watch?v=TNgmAi2ztyE</u>
- Streambank erosion drone survey (~1m), New Zealand, <u>https://www.youtube.com/watch?v=pOxk5-tNjyY</u>
- River bank erosion in Bangladesh (~5m), <u>https://www.youtube.com/watch?v=izHmK578rzE&t=124s</u>
- The devastating Padma River in Bangladesh swallowed the newly constructed Omar Ali High School (~3m), <u>https://www.youtube.com/watch?v=bZ-yFliccAw</u>

OPTIONAL VIDEOS

- Mass movement (~4m), <u>https://www.youtube.com/watch?v=YW8BKbpaXPI</u>
- Water erosion (~4m), <u>https://www.youtube.com/watch?v=ofhQvAu_L1I</u>
- UP2US Gully Erosion (~5m), <u>https://www.youtube.com/watch?v=TZ0loj1YBjY</u>
- River Geomorphology (47) Gullying and headcuts on a construction site during a storm (<1m), <u>https://www.youtube.com/watch?v=-E3hIsZuWR0&list=PLVa74th2F4P9p-mj-KIrlls8D5l6D1tb-&index=47</u>
- Erosion and sedimentation: How rivers shape the landscape (~3m) <u>https://www.youtube.com/watch?v=EMwGPPJ1Umk</u>

- Sediment Sources, Chapter 4, p. 36-51, Charlton, R. (2008). Fundamentals of fluvial geomorphology. Routledge.
- Large-scale sediment transfer, Chapter 5, p. 51-68, Charlton, R. (2008). Fundamentals of fluvial geomorphology. Routledge.

Week 10: Sediments in Rivers

- Sediment Terminology and classification
- Bed material
- Sediment Erosion
- Sediment Transportation
 - Suspended load
 - \circ bed load
 - o wash load
- Sediment Deposition

TYPICAL ASSIGNMENTS

- Mini-Quizzes
- Working with USGS data
 - Sediment rating curves

VIDEOS-SEDIMENT TRANSPORT AND MEASUREMENT

- Grain Sizes of Clastic Sedimentary Rocks (~2m) <u>https://www.youtube.com/watch?v=-AaRf_GvgB4</u>
- Transport of sediment by flowing water (~3m) old video St. Anthony Falls, <u>https://www.youtube.com/watch?v=ISAxgUoAmk4&t=108s</u>
- River Geomorphology (52) Underwater view; mobilization of bed material (~1 m) <u>https://www.youtube.com/watch?v=UAS19vsbhIQ&list=PLVa74th2F4P9p-mj-KIrlls8D5l6D1tb-&index=52</u>
- River Sediment Measurement, shows use of different samplers (~8m) <u>https://www.youtube.com/watch?v=8GNhjJAELIA</u>

VIDEOS-SEDIMENTARY DEPOSITS

 Formation of floodplains and levees, <u>https://www.youtube.com/watch?v=RwofXUK9HOo</u>, (Source: CravenGeog, 2014, ~ 4m)

OPTIONAL VIDEOS

- 2-Sediment transport (~11m) https://www.youtube.com/watch?v=kKXd0dv6ae4
- 3- Unidirectional bedforms (~15m) <u>https://www.youtube.com/watch?v=mEqdT_Hmb2w&list=PLfhL43gLKJ5kMV4UjBbkHvL_2tHSV99nle&index=3</u>

- Large-scale sediment transfer, Chapter 5, p. 51-68, Charlton, R. (2008). Fundamentals of fluvial geomorphology. Routledge.
- Processes of Erosion, Transport, and Deposition, Chapter 7, p. 93-116, Charlton, R. (2008). Fundamentals of fluvial geomorphology. Routledge.

Weeks 11, 12, and 13: Channel Morphology and Channel Changes

- Cross sections
- Channel planform and pattern
- channel profiles

TYPICAL ASSIGNMENTS

- Mini-Quizzes
- Working with USGS cross-sectional data
- Google earth channel planform
- Jeopardy

VIDEOS

- How to Measure a Stream Cross Section (~4m)
- <u>https://www.youtube.com/watch?v=7gFzC_bX7Tw</u> (~4m)
- Virtual Field Trip: River Terraces in Glen Canyon Park (~1 m) <u>https://www.youtube.com/watch?v=7blkZdgvjkA</u>
- River Processes and Landforms (Preview) (~2m) <u>https://www.youtube.com/watch?v=m7xwWGXUCXA</u>
- Aerial Southern Montana Billings, Bozeman, Yellowstone & Madison River (~7 m) <u>https://www.youtube.com/watch?v=84ImTJgzxQ0</u>
- Generate Slope or River Cross Section Profile using Google Earth Pro (~5m) <u>https://www.youtube.com/watch?v=IFNUhiqtdmE</u>
- How to extract contour lines And DEM from Google Earth (~10m) <u>https://www.youtube.com/watch?v=yXCbHm9sISA</u>
- What types of Landforms are made by Rivers? (~5m) <u>https://www.youtube.com/watch?v=XJ_FNS8Z_ek</u>
- In-channel gravel mining and bar pit capture (~4m) <u>https://www.youtube.com/watch?v=Se5HzG8MPKk&feature=youtu.be</u>
- River Geomorphology (34) Logjam Formation at the Transition From Straight to Meandering Channel. (~4m), <u>https://www.youtube.com/watch?v=QCNx0QKbe-o&list=PLVa74th2F4P9p-mj-KIrlls8D5I6D1tb-&index=34</u>
- Turtuk plains with braided river valley, Ladakh, ~1 m <u>https://www.youtube.com/watch?v=qQqgU1DgfFw</u>
- River Landforms of Erosion and Deposition AS Physical Geography <u>https://www.youtube.com/watch?v=JqFhmZc5Wis</u>

- Channel Form and Behavior, Chapter 8, p. 117-156, Charlton, R. (2008). Fundamentals of fluvial geomorphology. Routledge.
- System Response to Change, Chapter 9, p. 157-176, Charlton, R. (2008). Fundamentals of fluvial geomorphology. Routledge.

Weeks 14 and 15: Applied fluvial geomorphology and Synthesis

- Human activities
- River management
- Applied fluvial geomorphology

TYPICAL ASSIGNMENTS

- Mini-Quizzes
- Student projects

BREAKOUT ASSIGNMENTS

• **TBA**

VIDEOS

- Cadillac Desert 102 An American Nile (~55 m) <u>https://www.youtube.com/watch?v=hmCa5ZUDrqw</u>
- Unnatural Wonder: A 16-day Journey to the Heart of the Colorado River (~29 m) <u>https://www.youtube.com/watch?v=y_s3b-1nrl8</u>
- Glen Canyon Dam High Flow Releases (~13 m) <u>https://www.youtube.com/watch?v=kNmtWUBYf0s&t=53s</u>
- Lawn Lake Dam Failure 1982 (~15m), https://www.youtube.com/watch?v=npzp-YD8Vc8
- Sediment Removal Techniques for Reservoir Sustainability (~3 m) <u>https://www.youtube.com/watch?v=4v2o6tEIz-E</u>
- A Tale of Two Rivers--Mississippi River Flood of 1927 excerpt part 1, 2002 (~14 m) https://www.youtube.com/watch?v=UGy4DgeaZNo
- A Tale of Two Rivers--Mississippi Part 2 1, 2002 (~10 m) <u>https://www.youtube.com/watch?v=DulwXN_xRbI</u>

READINGS

• Managing River Channels, p. 177-200, Chapter 10, Charlton, R. (2008). Fundamentals of fluvial geomorphology. Routledge.

ATTENDANCE POLICY: Do your best to attend and participate in the course throughout the duration of the term. Please communicate when there is a problem. All assignments will be listed in the course schedule, and specific due dates can be found in the calendar. Requirements for class attendance and assignments in this course are consistent with university policies that can be found in the current UF Undergraduate Catalog

HONOR CODE: UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code." On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor of this class.

STUDENTS WITH DISABILITIES AND OTHER CONCERNS "Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. Please take care of your health and be aware that the University Counseling Center (<u>http://www.counseling.ufl.edu/cwc/Default.aspx</u>, 392-1575), the Student Health Care Center (392-1161) and Student Mental Health (392-1171) can assist students as they work through personal, academic, and social issues. Provide advance notice and obtain documentation for excused absences where possible. If needed, University Police Department can be contacted at 392-1111 or Dial 9-1-1 for emergencies.

COMMON SENSE ADULT BEHAVIOR Please minimize distractions to yourself and others during class time (mute when appropriate, pay attention, etc.).

GETTING HELP IN CANVAS: For issues with technical difficulties for Canvas, please contact the UF Help Desk at: http://helpdesk.ufl.edu; (352) 392-HELP (4357); Walk-in: HUB 132 Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from the Help Desk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you need to resubmit.

EVALUATIONS: Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.