



ENVS 334 Africa in the 22nd Century: Dystopia or Ecotopia
Building Connections Between Social, Economic, and Natural Science
Quantitative Reasoning Attributes
3 Credit Course

Fall Synchronous, MWF, and Spring Asynchronous (7.5W1 & 2)

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Land Acknowledgement

The University of Arizona has crafted a new statement acknowledging the university's home on the land and territories of Indigenous people. This statement is a foundation and first step:

"We respectfully acknowledge the University of Arizona is on the land and territories of Indigenous peoples. Today, Arizona is home to 22 federally recognized tribes, with Tucson being home to the O'odham and the Yaqui. Committed to diversity and inclusion, the University strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service."

Course Information

Catalog Description

As the origin of humans and the second largest continent, Africa has natural resource abundance, fast economic growth rates, and a youthful population [an ecotopia outlook]. Paradoxically, Africa's economic growth rates are disproportionately slow compared to its high urbanization and population growth rates [a dystopic outlook]. In this course, students choose an African country, analyze its environmental, economic, and social parameters, conclude on its future, and generate a composite of Africa's 2100 outlook. Students will explore possible solutions to Africa's paradoxical resource-rich curse and demographic time-bomb by building these connections between social, economic, and environmental perspectives.

Extended Description of Our Course Content

Africa is the second largest continent and the origin of humans. It has abundant natural resources and is an economically underdeveloped and demographically young continent. On the other hand, it has a higher economic growth rate, urbanization, and population growth rates. The African population is expected to peak around 2100, and its proportion of the global population could double. Some scholars believe Africa suffers from the resource curse, and its population dynamics and structures are a demographic bomb. Paradoxically, some believe Africa will become a superpower. Thus, there is an ecotopia - a place or way of life that is ecologically perfect and dystopia - hypothetical unfavorable culture - outlooks about the African future. The course analyzes Africa's environmental, social, and economic parameters. Students will select an African country, examine its environmental and socioeconomic fabrics, generate simple models, and conclude its outlook as a dystopia or ecotopia. The course will composite Africa's outlook from the individual country's outlooks. The teaching methods will include lessons, YouTube videos, case studies, databases for knowledge acquisition, and a combination of exams, written reflection, and course activities for assessment. This course does not require high mathematical skills; it contextualizes quantitative reasoning to ask real-world questions and formulate potential solutions.



Instructor and Contact Information

Contact Information

Name: Jacqueline 'Jackie' Maximillian, Ph.D.
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Office Hours

I usually have an open-door policy; please email me to ensure I am in the office. I am available at MWF from 1 to 3 p.m. for in-person and Zoom Office hours. Email me several of your time preferences for a definite appointment outside office hours, and we could arrange a Zoom meeting. I am here to help you, so please meet with me if you need/want to! Also, see the Course Communications section on the different communication methods in this course.

Course Objectives

In this course, students will

1. **Identify** and **analyze** primary environmental and socioeconomic parameters from international and national databases and dashboards and **apply** those relevant to Africa's country context.
2. **Interpret** and **explain** each socioeconomic and environmental parameter and **evaluate/assess** their respective performances.
3. **Synthesize** and **compose** written arguments about Africa's outlook by **critically analyzing** evidence from multiple disciplinary perspectives (environmental and socioeconomic performance indicators).
4. **Create** simple and composite conceptual models that represent an African countries and continent's environmental and socioeconomic performance using appropriate visual or abstract representations.
5. Use multimedia to **translate** and **communicate** evidence, arguments, and conclusions of Africa's outlook to the public.

Expected Learning Outcomes

Students should know or be able to do upon completing the course:

1. **Building Connections** | Utilize socioeconomic and natural science disciplines, make meaningful connections across disciplines and social positions, think conceptually and critically, and solve problems. [Assessed: Conceptual Model Rubric]
2. **Communication** | Communicate technical information appropriately to various audiences using various mediums. [Assessed: Oral and Written Communication Value Rubric].
3. **Quantitative Reasoning** | Work with numerical information by critically analyzing social, economic, and environmental data, generate ideas supported by quantitative evidence, assess the relevance of data and its associated implications in various contexts, and communicate those ideas and associated interpretations using mathematical and conceptual models. [Assessed: Quantitative Literacy Value Rubric]
4. **Critical Thinking and Problem-Solving Skills** | Propose appropriate solutions to continuously evolving problems at the environment-society nexus. [Assessed: Quantitative Literacy Value Rubric]

Required Resources and Equipment

Required Readings



A compilation of materials from various sources provided by the instructor.

Required or Special Materials

Minimum System Requirements

To succeed, your computer and browser must meet minimum requirements for working optimally for D2L, Adobe Connect, and other systems. See UA [Minimum System Requirements](#).

Reliable Internet Connection

This is an extensive web-based search course where you will access various government databases, applications, and interphases in search of qualitative and quantitative data.

Course Assessment Plan

I designed assignments in this course based on scaffolding learning, an instructional strategy that gradually guides you toward increasing independence and comprehension. Thus, you will complete the assignments in the following sequence: pre-class materials, interactive lectures, signature assignment, and final verdict. A summary of each assignment category is provided below, and the details of the individual assignments are available in D2L.

Pre-Lecture Materials (20% of the final grade)

Students will complete or consult these learning materials before attending a class or accessing lectures. Pre-lecture materials include short readings, YouTube videos, case studies, and databases. Pre-lecture materials will be associated with short quizzes to ensure the students are ready for class discussions. For asynchronous class, the pre-lecture materials are part of the interactive lectures activities.

Interactive Lectures Activities (20% of the final grade)

Active learning tasks are embedded in the course interactive lectures to elaborate on the pre-lecture materials and allow students to apply the module concepts. Students will learn to collaborate in problem-solving and generating artifacts, listen to peers' interpretations, and reach consensus. The in-class activities aim to engage students in learning and test their understanding. Each class will have active learning activities.

Signature Assignment (60% of the final grade)

The signature assignment has two parts and audiences: Country Profile and WildcatView. The country profile uses technical language for disciplinary communication, and WildcatView uses non-technical language to translate into public communication. This means, the students will practice translating from technical to non-technical language for the public.

Part A: Signature Entries in Country's Profile



Entries' assignments allow students to practice quantitative reasoning, critical thinking, and building connections between socioeconomic and environmental sciences' measures of a country's performance. Students will be writing for the peer population as the audience. Individual students will each select an African country of interest and investigate social, economic, and environmental systems using peer-reviewed articles and websites/dashboards/databases from international organizations and intergovernmental agencies. Students will engage in the course outcomes by formulating hypotheses, examining evidence, socioeconomic and environmental performance trends, patterns, and levels, drawing conclusions, building conceptual models, and synthesizing knowledge. Students will extract data from dashboards, such as Our World in Data, human development data from the United Nations Development Program, environmental performance data from Yale University, sustainable development goals from the United Nations, and interviews with African people. This signature assignment is scaffolded throughout this course, and students will submit one component of the work with each module. There are six entries: Entry 1: Africa 2100 Hypothesis, Entry 2: Environmental Impact Equation, Entry 3: Sustainable Development Goals, Entry 4: Environmental Parameters, Entry 5: Social and Economic Parameters, and Entry 6: Africa 2100 Conceptual Model. In the final entry (Entry 6), students will distill and synthesize the information into a representative conceptual model. This step acts as a conceptual bridge between Part A (the Country Profile) and Part B (Signature WildcatView) of the signature assignment. Students will extract numerical data, graphs, and visuals from databases and dashboards throughout these entries, make a simple conceptual model, interpret, and conclude. Students will identify gaps in the data and generate interview questions for at least one African diaspora. Preferably from the student's country of study. Students will post their work on the discussion board with peers' comments and observations. As part of extra credit, students will unite all the countries and create an African Continent Profile.

Part B: Signature WildcatView

In this final product, students will take their country profile and communicate a 5-minute talk on the outcome of quantitative reasoning, critical thinking skills, and building connections about Africa's 2100 outlook. Students will provide recommendations, solutions, or insights into the problem. This could involve making decisions, suggesting optimizations, or proposing strategies based on the country's model's results. The public is the audience. The students will choose the style, which includes TEDx (Technology, Entertainment, Design) talk, newscast (podcast), newscasting or broadcasting, lectures, etc. Students could choose to collaborate and present information in interviews or debate format.

Final Examination or Project

The final project for this class is WildcatView, due December 12 at 11:59 p.m. In the Assignment tab, you will submit the final in D2L under the Final Verdict: Ecotopia or Dystopia folder. You will find the assignment tab under the course navigation bar. For information on regulations and schedules, please visit the University of Arizona's [Final Exam Regulations](#) and [Final Exam Schedule](#).

Grading Scale and Policies

This section explains the evaluation methods and how the final grade will be calculated, including components/assignments, weightings, evaluation criteria, how late work will be graded, and a description of extra-credit opportunities.



Course Component	Percentage of Grade (%)
Pre-Lecture Materials	20
Interactive Lectures Activities	20
Signature Assignment	
Entries (7 entries)	40
WildcatView	20

Scheduled Topics/Activities

Table 1 shows the topics and assignments due each week. The specific due dates for each assignment are available in the Checklist in D2L. Following the deadlines is essential to making grading efficient and effective. Please plan.

Grading Scale

A = 90-100 B = 80-89 C = 70-79 D = 60-69 F = ≤59

Table 1 Scheduled Topics/Activities

Aug. 26 - Sept. 1 | WEEK 1 | Module 1 | Introduction to Africa 2100

Module 1.1 Course Introduction

Module 1.2 Ecotopia or Dystopia Perspectives (Choose an African Country)

Module 1.3 African Countries

Signature Assignment: Entry 1 Africa 2100 Hypothesis

Sept. 02 - 15 | WEEK 2 & 3 | Module 2 | Environmental Impact Equation (Drivers of Change)

Module 7.1 Demography

Module 7.2 Urbanization

Module 7.3 Technology

Signature Assignment: Entry 2 Drivers of Change

Sept. 16 - Oct. 06 | WEEK 4 & 5 | Module 3 | Monitoring and Evaluation

Module 3.1 Metrics, Measures and Indicators

Module 3.2 The Sustainability Concept



Module 3.3 The Environmental Systems

Oct.07 - 20 | WEEK 6 & 7 | Module 5 | Sustainable Development Goals

Module 4.1 Sustainability Goals

Module 4.2 Targets and Indicators

Module 4.3 Country's Target and Indicators

Signature Assignment: Entry 3 Sustainable Development Goals

Oct. 21 - Nov. 3 | WEEK 8 & 9 | Module 6 | Africa's Environmental Performance Index

Module 5.1 Hydrosphere

Module 5.2 Atmosphere

Module 5.3 Biosphere

Module 5.4 Lithosphere

Signature Assignment: Entry 4 Environmental Performance Index

Nov. 4 - 17 | WEEK 10 & 12 | Module 7 | Africa's Socioeconomic Indicators

Module 6.1 Human Development Index

Module 6.2 Social Index

Module 6.3 Economic Growth

Signature Assignment: Entry 5 Socioeconomic Indicators

Nov 18 - Dec. 1 | WEEK 13 & 14 | Module 8 | Africa 2100 Conceptual Modeling

Module 8.1 Model Fragments

Module 8.2 Single Country Conceptual Model

Module 8.3 Composite Country Conceptual Model

Module 8.4 African Diaspora Voices

Signature Assignment: Entry 6 Africa 2100 Conceptual Model

Dec. 2 - 15 | WEEK 13 | Module 9 | WildcatView

Module 9.1 Translating Technical Information

Module 9.2 Crafting an Effective Presentation



Module 9.3 African Voices

Signature Assignment: WildcatView (Multimedia)



Course Policies

While UA Policies apply to all courses, most courses have some specific policies. This segment differentiates between policies about course progress and completion and classroom climate and community engagement.

Absence and Class Participation Policy

Participating in the course and attending lectures and other events are vital to learning. As such, attendance is required at all lectures and discussion section meetings. Absences may affect a student's final course grade. If you anticipate being absent, are unexpectedly absent, or are unable to participate in class online activities, please contact me as soon as possible. To request disability-related accommodation to this attendance policy, please contact the Disability Resource Center at (520) 621-3268 or drc-info@email.arizona.edu. If you are experiencing unexpected barriers to your course success, the Dean of Students Office is a central support resource for all students and may be helpful. The Dean of Students Office is in the Robert L. Nugent Building, room 100, or call 520-621-7057. UA's Class Attendance and Participation and Administrative Drops policy are available [here](#).

The UA policy regarding absences for any sincerely held religious belief, observance, or practice will be accommodated where reasonable. For details, go to [Religious Accommodation Policy](#). Other absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored, and details of the absences will be provided by the Dean of Students Office [Attendance Policies and Practices](#).

Late Submissions and Revisions Policy

Due dates for each assignment are published on the course "Checklist and appear in the calendar. Work turned in by 11:59 PM Mountain Time on the due date, as evidenced by the date stamp given on the submission folder in D2L, will be considered on time and receive full credit. All coursework (including, but not limited to, assignments, reading quizzes, and final projects) must be submitted no later than the due date unless prior arrangements are made with the instructor or grader and a new due date is established. If a student submits an assignment after the due date without arranging with the instructor, a minimum of 10% of the grade will be deducted. In other words, late work will be accepted if submitted within 72 hours of the original due date but will be docked 10%.

After 72 hours, you will receive 50% of the grade points. Students with documented evidence of an emergency that prevented prior communication with the instructor may present documentation to the instructor or grader for consideration. Coursework will only be accepted after the last day of the term if arranged as part of a [Course Extension](#). *Email the instructor or an assigned TA your excuse before the assignment due date.*

Incomplete (I) or Withdrawal (W)

Requests for incomplete (I) or withdrawal (W) must be made following University policies. The policies are available for incomplete and withdrawal at the "[Grade and Grading System](#)" website.

Dispute of Grade Policy



If you are unsatisfied with a grade you received on an assignment, please email, or call the instructor within three days. Check the grade book throughout the course to review assignment feedback. If you have questions or concerns about a grade, please contact the instructor ASAP. Be sure to discuss missing assignments or grades in the grade book before final grades are posted.

Makeup Policy for Students Who Register Late

If you registered late, contact the instructor to complete the assignments. You will have one week to catch up with the rest of the class.

Use of Devices for Learning

Because instructors may be curious about what their students are doing on their devices, electronic devices might be a barrier between the instructor and the student. At the same time, students who struggle with invisible disabilities like dyslexia, ADHD, or vision problems utilize computers to take notes and access cloud-based assistive solutions. Additionally, the course uses Excel, and students access course materials and resources for your class via Brightspace. Therefore, laptops and other electronic devices are allowed in the classroom. The expectation is that the students will use the device responsibly.

UA Policies and Student Success Resources

Academic Advising

Please contact your academic advisor if you have questions about your academic progress this semester. If you need more information, go to the [Advisors by Majors](#) website. Contact the [Advising Resource Center](#) for all general advising questions and referral assistance. Call 520-626-8667 or email advising@arizona.edu.

Accessibility and Accommodations

At the University of Arizona, we strive to make learning experiences as accessible as possible. If you anticipate or experience barriers based on disability or pregnancy, please contact the [Disability Resource Center](#) or call 520-621-3268 to establish reasonable accommodations.

Code of Academic Integrity

A student is encouraged to freely share intellectual views and discuss the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students must adhere to the [UArizona Code of Academic Integrity](#) described in the UA General Catalog. The [University Libraries](#) have some excellent tips for avoiding plagiarism.

Selling class notes and/or other course materials to other students or a third party for resale is not permitted without the instructor's written consent. Violations of this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA email to sell or buy these copyrighted materials are subject to the Code of Conduct Violations for misuse of student e-mail addresses. This conduct may also constitute copyright infringement.

Confidentiality of Student Records



The Family Educational Rights and Privacy Act of 1974, commonly referred to as FERPA or the Buckley Amendment, is a federal law designed to protect the privacy of a student's education record. Student records are kept confidential as per the [FERPA policy](#).

Course Climate and Inclusion Statement

The University of Arizona is committed to creating and maintaining an environment free of discrimination. In support of this commitment, the University prohibits discrimination, including harassment and retaliation, based on a protected classification, including race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, or genetic information. For more information, including how to report a concern, please see the [anti-harassment policy here](#).

In our classroom, everyone is encouraged to express well-formed opinions and their reasons for those opinions. We also want to create a tolerant and open environment where such opinions can be expressed without bullying or discrimination against others.

Life Challenges

If you are experiencing unexpected barriers to your course success, please note the Dean of Students Office is a central support resource for all students and may be helpful. The [Dean of Students Office](#) can be reached at (520) 621-2057 or DOS-deanofstudents@arizona.edu.

Physical and Mental Health Challenges

If you face physical or mental health challenges this semester, please note that Campus Health provides quality medical and mental health care, see [Counseling and Psych Services](#) (CAPS) information. For medical appointments, call (520) 621-9202. For After-Hours care, call (520) 570-7898. For the Counseling & Psych Services (CAPS) 24/7 hotline, call (520) 621-3334. There is also a Survival Advocacy Program that provides confidential support and advocacy services to student survivors of sexual and gender-based violence. The Program can also advise students about relevant non-UA resources available within the local community for support. Visit their [website](#) or email at survivoradvocacy@arizona.edu or call (520) 621-5767.

Safety on Campus and in the Classroom

For a list of emergency procedures for all types of incidents, please visit the website of the [Critical Incident Response Team](#) (CIRT). Also watch the available [video](#).

UA Academic Policies

The University of Arizona has policies and procedures for student success, which include withdrawing from the course and university, change of schedule, class attendance and participation, academic petitions, academic integrity, etc. The list of policies and procedures is available on the ["All Policies"](#) website.

Other Important Policies



All UA courses adhere to the general UA Policies stated on the institutional [Syllabus Policies](#) website. Please familiarize yourself with the Student Code of Academic Integrity and the protocol ensuring non-discriminatory, anti-harassment, and non-threatening learning experiences. This site also includes a list of student resources. The entirety of University Policies can be found under [All Policies](#). Other essential resources include Safety on Campus and in the Classroom at [Building a Safe & Supportive Community](#) and [Campus Pantry](#).

Subject to Change Statement

Information in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.