




ag-informatics-course / README.md

 sudokita Update README.md ...

History

1 contributor

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"Introduction to Agricultural Informatics Course" by [Ankita Raturi, Purdue University](#) is licensed under [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License](#).

A Course in Progress: this course is currently being developed as it is offered for the first time. Relevant changes to this course will be posted to this Github repository. New materials will be shared here each week. Major updates will be announced in class and/or via email/Slack.

Introduction to Agricultural Informatics

We will overview current and emerging technologies used in digital agriculture. You will be engaged in learning technology fundamentals (languages, concepts, methods), through seven 2-week projects. These hands-on exercises will allow you to gain a practical understanding of the technology itself, review research and development trends, and debate opportunities and challenges presented by each technology. This course will equip you with basic computational thinking and software development skills for Agricultural Informatics careers.

Learning Objectives

By the end of this course, you will be able to:

1. Demonstrate an understanding of informatics challenges in food and agricultural systems.
2. Develop programming skills to create scripts and web applications to explore, store, manipulate, and view food and agriculture data.
3. Develop computational thinking skills to select appropriate informatics approaches and digital technologies to solve a range of challenges in food and agricultural systems.
4. Conceptualize an informatics solution to solving an open food system or agricultural challenge.

Course Communications

Course Materials: This github repository will contain links to all slides, labs, etc. I will release each module's content one or two weeks at a time.

Course Discussion: Join the course slack channel to chat with the instructors and students at both Purdue & Uni of Kentucky, where the course is being co-taught.

[Join the Slack Channel](#)

Student Consultations: Make appointments with me via email or slack.

Purdue Instructor: Ankita Raturi

Slack: Contact @sudokita via Slack direct message for quick general discussion about the course. If it's a question/comment others can benefit from, consider using the more general channels. I will try to respond within 1 working day to Slack messages. We cannot discuss grades, personal matters, and so on via Slack due to [FERPA policies](#). If in doubt, contact me via email/in-person.

Email: Contact ankita@purdue.edu with the email subject: **[ASM 591 AGINF]** for better indexing. Reserve use of email for long and/or complex communications. I will try to respond to email within 2 working days.

Office: ABE Building, Room 4031K. For in-person consultations, make an appointment first. In case we can't meet in person, we will use WebEx for a video-call meeting, as agreed upon via email. I will try to provide in-person appointments within 2 working days of your request.

Purdue Logistics

Lectures: ABE 1164. Tuesdays & Thursdays @ 9.30am - 10.20am. These will be recorded and made available online if possible.

Labs: ABE 2098. Thursdays, 1.30pm - 3.20pm. If you have a scheduling conflict, I expect you to complete the labs in your own time.

Course Structure & Schedule

This course is divided into eight 2 week modules. Each module is structured approximately as follows:

- **Week 1:**
 - **Lecture 1 - Ankita:** introduces the topic of the module. This will be discussion-based synchronous lecture.
 - **Lecture 2 - Ankita and/or Video(s):** introduces the skills required for the module. Typically a link to video(s) that you can watch in your own time. I will be available in the lecture room in case you have questions, or want to discuss any concepts.
 - **Lab Part 1:** apply the introductory skills and concepts learned in week 1.
 - **Quiz:** quick knowledge evaluation in the form of short, multiple choice questions via Brightspace.

- Week 2:
 - **Lecture 3 - Guest:** this will typically be a guest lecture. Depending on the guest's availability, it may be swapped with lecture 4. These will typically give you insight into how the module topic is practices in industry or research.
 - **Lecture 4 - Ankita:** I will typically bookend the module with a discussion/demonstration of how the skills/concepts apply to problems in food and agriculture systems.
 - **Lab Part 2:** building on the previous lab, you will apply the skills/concepts in the context of food and agricultural data/challenges.

The full course schedule is described below. If you click on each module, you will see details on the lectures, labs, and the quiz.

Module	Weeks	What's happening?
1 - Web Design	Week 1 & 2	Lectures 1.1-1.4, Quiz 1, Execute Lab 1.1 & 1.2
2 - Data Exploration	Week 3 & 4	Lectures 2.1-2.4, Quiz 2, Submit Lab 1, Execute Lab 2.1 & 2.2
3 - Web Applications	Week 5 & 6	Lectures 3.1-3.4, Quiz 3, Submit Lab 2, Execute Lab 3.1 & 3.2, Submit Project Part 1
4 - Data Management	Week 7 & 8	Lectures 4.1-4.4, Quiz 4, Submit Lab 3, Execute Lab 4.1 & 4.2
5 - User Interfaces	Week 9 & 10	Lectures 5.1-5.4, Quiz 5, Submit Lab 4, Execute Lab 5.1 & 5.2, Submit Project Part 2
6 - Mapping	Week 11 & 12	Lectures 6.1-6.4, Quiz 6, Submit Lab 5, Execute Lab 6.1 & 6.2
7 - Future of Ag Tech	Week 13 & 14	Lectures 7.1-7.4, Quiz 7, Submit Lab 6, Execute Lab 7.1 & 7.2
8 - Reviews and Previews	Week 15 & 16	Lectures 8.1-8.4, Submit Project Part 3

Course Assessments

Quizzes will be available on Brightspace the Monday before they are due. They 7 quizzes, due every 2 weeks. The quiz will automatically close at 5pm, Fridays, on the due dates listed below. Quizzes are multiple choice/short answer, and will be auto graded. These are intended to serve as "participation" checks, and hopefully help you evaluate how you're coping with the course.

Labs will be available on Github every Monday. Each lab is due at the start of the next 2 week module. Each lab will come with submission instructions, but I will generally expect a timestamp of no later than 5pm the day it is due. There will be a 5 hour no-penalty grace period in case you have technical difficulties with submission.

The first part of the **Project** description and submission instructions will be available on 09/21/2021. Each of the three parts will be evaluated based on a high-level rubric to be provided with the project description, with more detail released as we progress through the parts.

The **Exam** will consist of a mix of short and essay style questions. More detail will be shared later in the semester.

Late Policy: You can have three "late days" where you submit work a day late with no questions asked. You can use these for quizzes, labs, and projects part 1 & 2. After that, you will be penalised 5% per day late. *The moment you have any issues, please contact me, and we can discuss options.*

Assessment	Description	Due Dates	Weight
Quizzes	Due every two weeks, in week 1 of each module	8/27/2021, 9/10/2021, 9/24/2021, 10/8/2021, 10/22/2021, 11/5/2021, 11/19/2021	1% for quizzes 1, 3, 5, and 7. 2% for quiz 2, 4, and 6.
Labs	Due every two weeks on the Mondays (Holiday exceptions, due next day).	9/7/2021, 9/20/2021, 10/4/2021, 10/18/2021, 11/1/2021, 11/15/2021, 11/29/2021	5% x 7 labs

Assessment	Description	Due Dates	Weight
Project Part 1	Concept motivation: select 3 papers and write a combined reflection on an agricultural informatics problem	09/28/2021	5%
Project Part 2	Concept proposal: a short proposal of a research/development concept	10/27/2021	10%
Project Part 3	Concept presentation and write up of your proposed approach/solution in class during lecture time (same day submission).	12/2/2021	5% presentation + 10% writeup
Exam	Take home exam released during finals week.	Date TBD	25%

Grading Scale

In this class grades reflect the sum of your achievement throughout the semester. Grades cutoffs are as follows:

Letter	Percentage
A+	97 and above
A	94 to 96.99
A-	90 to 93.99
B+	87 to 89.99
B	84.00 to 86.99
B-	80.00 to 83.99
C+	77.00 to 79.99
C	74.00 to 76.99

Letter	Percentage
C-	70.00 to 73.99
D+	67.00 to 69.99
D	64.00 to 66.99
D-	60.00 to 63.99
F	59.00 and below

Course Feedback & Evaluation

This is the inaugural offering of this "special topics" course, which means components are actively under development and there may be bugs! I would love to hear about your experience, get feedback on the course materials, and generally learn more about where and how this course fails/succeeds to meet your needs. No need to wait till the end!

Reporting issues in Github: Found a bug in the code, slides, syllabus, or other materials? Have a suggestion for how to improve this course? [Submit an "issue"](#) to this repository! Alternatively, send a message on the "issues" slack channel.

USDA HEC Proposal Evaluation: See Tanya Dvorak's email for more information.

Course Evaluation: I encourage you to submit the standard course evaluation form as well. This will be very helpful in helping refine and revise this course to deliver a better student experience!

Support & Policies

Attendance Policy

This course is designed in a hybrid model, with some face-to-face meetings and others completed remotely. University policy states that students are expected to be present for every meeting of the classes in which they are enrolled. For the purposes of this course, being "present" means participating in-person or remotely as described in the course structure and completing work assigned for days when we do not meet face-to-face. This work is required to help you meet the course learning outcomes. These times count toward the course contact hours and your course grade.

That said, this has been a complicated year, and you can contact me if you have any challenges/concerns with attending classes in-person. Guidance on class attendance related to COVID-19 are outlined in the [Protect Purdue Pledge](#) for Fall 2021 on the Protect Purdue website.

Academic Guidance in the Event of Quarantine/Isolation

Your health and safety is important. If you must miss class at any point in time during the semester, please reach out to me via email so that we can communicate about how you can maintain your academic progress. If you find yourself too sick to progress in the course, notify your adviser and notify me via email or Brightspace. We will make arrangements based on your particular situation.

Accessibility

Purdue University is committed to making learning experiences accessible. If you anticipate or experience physical or academic barriers based on disability, you are welcome to let me know so that we can discuss options. You are also encouraged to contact the Disability Resource Center at: drc@purdue.edu or by phone: 765-494-1247.

Academic Integrity

Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert university officials to potential breaches of this value by either emailing integrity@purdue.edu or by calling 765-494-8778. While information may be submitted anonymously, the more information is submitted the greater the opportunity for the university to investigate the concern. More details are available on our course Brightspace table of contents, under University Policies.

Make sure your lab Github repositories are "private" for the duration of the course, to prevent others from simply copying your code. I trust that you will work independently, and will evaluate your work based on your "commit" history (i.e., you should NOT just commit the ENTIRE lab 5 minutes before the deadline). In general, writing code with the help of the internet is permissible, i.e., you can ask questions on Stack Overflow, discuss the problems with each other on Slack. Ultimately, I have a policy in which I trust that you are doing the right thing, unless I see evidence to the contrary.

Nondiscrimination Statement

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life. A hyperlink to Purdue's full Nondiscrimination Policy Statement is included in our course Brightspace under University Policies.

Mental Health and Wellness Statement

If you find yourself beginning to feel some stress, anxiety and/or feeling slightly overwhelmed, try [WellTrack](#). Sign in and find information and tools at your fingertips, available to you at any time.

If you need support and information about options and resources, please contact or see the [Office of the Dean of Students](#). Call 765-494-1747. Hours of operation are M-F, 8 am-5pm.

If you find yourself struggling to find a healthy balance between academics, social life, stress, etc. sign up for free one-on-one virtual or in-person sessions with a [Purdue Wellness Coach at RecWell](#). Student coaches can help you navigate through barriers and challenges toward your goals throughout the semester. Sign up is completely free and can be done on BoilerConnect. If you have any questions, please contact Purdue Wellness at evans240@purdue.edu.

If you're struggling and need mental health services: Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of mental health support, services are available. For help, such individuals should contact [Counseling and Psychological Services \(CAPS\)](#) at 765-494-6995 during and after hours, on weekends and holidays, or by going to the CAPS office on the second floor of the Purdue University Student Health Center (PUSH) during business hours.

Basic Needs Security

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support. There is no appointment needed and Student Support Services is available to serve students 8 a.m.-5 p.m. Monday through Friday. Considering the significant disruptions caused by the current global crisis as it related to COVID-19, students may submit requests for emergency assistance from the [Critical Needs Fund](#).

Emergency Preparation

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's control. Relevant changes to this course will be posted to this Github repository. You are expected to read your @purdue.edu email on a frequent basis.

Notes on Syllabus Authorship

Some of the generic statements and links to further information are provided via the Purdue Syllabus Template. We have tweaked them for applicability to this course, in some cases, adding course-specific language.