

COURSE SYLLABUS

RNR 355, Introduction to Wildland Fire 2022

MWF 11:00 – 11:50

Description of Course

Fire has become front-page news, as well as a fundamental aspect of land management. Introduction to Wildland Fire aims to provide students with a broad, balanced understanding of fire as a biophysical process. We explore fire from many perspectives, including physics, ecology, biogeography, management, policy, and economics. The course strives to make our study of fire interesting and relevant in the contemporary world by examining how such factors as climate change, invasive species, and land use influence how fire interacts with the landscape. We will examine a variety of fire management strategies including fire suppression, fuels treatments, prescribed fire, wildland fire use, and landscape restoration ecology. The course will provide a global perspective on fire, with primary emphasis on ecosystems of western North America, using recent fires as case studies.

Course Prerequisites or Co-requisites

To obtain the maximum benefit from the course, and to contribute to group discussions, students enrolling in the course should have completed at least two (2) semesters of introductory biology. A course in ecology and/or natural resource management is recommended but not required. Students with questions about their level of preparation are encouraged to contact the instructor prior to registration.

Instructor and Contact Information

Don Falk, Professor

Office: ENR2 N-224

E-mail: dafalk@arizona.edu

Office Hours: 12:00 – 12:45 PM Mondays and Fridays in office, or by Zoom; some Wednesday are also available.

Other times as needed by appointment.

Course Format and Teaching Methods

Fire is a very visual phenomenon. Classroom time will include examination of maps, photographs and aerial images, and videos of fire in action. Teaching methods will include illustrated lectures, group discussion led by the instructor and students, and a case study project. Experts in various aspects of fire science and management will lecture and lead discussions on a variety of subjects. During the term, we will use a wide variety of information sources including web-based searches conducted by students.

This course will be taught **live in class** following University guidance. Students should be in class at the regularly assigned time in order to achieve the maximum benefit from the course materials.

“Big Fire” case study project. During the second half of the course, students will work in small groups to conduct a detailed case study of one real fire event, selected from a list provided by the instructor and using a standard template of information to be sought for the event. Students will use the template to collect and synthesize information about date and cause of ignition, control sequence, vegetation type, suppression strategies and costs, progression, and post-fire effects. Information can be obtained from published works, internet sources, or interviews with fire managers. Students will be encouraged to include photographs, maps, and other graphical images in their reports. The case study is conducted during the second half of the semester, when students have

acquired a basic understanding of fire science and management. Studying a single large event allows students to vertically integrate their knowledge of fire physics, behavior, weather and landscape influences, management strategies and tactical decisions, effects, and economics. The case study will be the main creative student product during the term. Reports will be submitted electronically, and presented by the group to the class in the last two class sessions of the term. More details will be provided at the time the project is announced.

Course Objectives

RNR 355 is designed to be useful to students in many fields of study, including natural resource management, ecology, water resources, watershed and range management, geography, arid lands studies, and dendrochronology. The course will serve as a pre-requisite for more advanced coursework in fire science, management, and related topics.

Expected Learning Outcomes

By the conclusion of the course, students will be able to:

1. **Explain** basic fire physics and chemistry
2. **Evaluate** fire behavior, the dynamics of fire spread and interactions with landscapes
3. **Predict** fire effects on species, communities, and ecosystems
4. **Compare** fire regimes of the world
5. **Apply** fire science principles as they pertain to fire management and policy
6. **Attribute** the relationship of fire to other important contemporary environmental issues
7. **Summarize and interpret** the complexity of large fire events
8. Students will also **develop and practice** skills in information retrieval and analysis, including how to **locate and synthesize** fire science literature, and create clear written and oral presentations of information.
9. Through practical hands-on exercises, students will develop proficiency in **accessing** web-based portals with remote sensing information about fire, **using** computerized fire behavior models, and accessing on-line databases of fire ecology information.

Makeup Policy for Students Who Register Late

Students who register after the first class meeting may make up missed assignments/quizzes within the first two weeks of class without penalty.

Course Communications

The course will be managed on D2L, and email communication with the instructor is welcomed.

Required Texts or Readings

Readings will be drawn from the published scientific and management literature and provided on D2L. There is no required textbook for the course. Material from the readings will be included in quizzes, exams, and exercises.

Required or Special Materials

No special tools or supplies will be needed other than access to a computer with standard capabilities.

Required Extracurricular Activities

There are no required extra-curricular activities.

Assignments and Examinations: Schedule/Due Dates

Every student who works diligently can achieve a positive learning experience in this course. Grades in the course will be based on student performance in four major course elements over the semester:

1. Class session attendance (40)
2. Unit quizzes (5)
3. Take-home exercises (4)
4. "Big fire" case study project (1)
5. Final comprehensive examination (1)

Grades will be calculated as follows on a total of 420 possible points for the term as follows:

Course element	Number during term	Points each	Total points	Pct of grade
Attendance and participation	40	1	40	10%
Unit quizzes (Units 1-5)	5	25	125	30%
Exercises	4	25	100	24%
Case study project	1	80	80	19%
Final examination	1	75	75	18%
TOTAL			420	100%

Unit quizzes and the final exam may include multiple choice, short-answer, and essay responses, including interpretation of maps and images provided during a quiz or exam. Students are responsible for all material covered in lectures, discussions, readings, and presentations by students; any of these may appear on a quiz or exam. Unit quizzes are designed to be completed in 30-45 minutes and will be conducted during class time.

Take-home exercises will be submitted to the D2L drop box in Microsoft Word or PDF format prior to class on the due date. Usually you will have at least a week to complete take-home exercises once they are distributed. To be fair to other students, late work and incompletes are discouraged strongly, and must be discussed and agreed upon with the instructor in advance; otherwise, late penalties will be assessed at a rate of 10% per day. Missing quizzes and exams is particularly strongly discouraged and will be allowed only under limited circumstances consistent with University policy.

Final Examination or Project

The date and time of the final exam follows the University's Final Exam Schedule:

<http://www.registrar.arizona.edu/schedules/finals.htm>

Grading Scale and Policies

Letter grades are assigned based on cumulative points earned for all activities. The course follows standard University policy regarding grades and grading systems: <http://catalog.arizona.edu/policy/grades-and-grading-system>

Incomplete (I) or Withdrawal (W):

Requests for incomplete (I) or withdrawal (W) must be made in accordance with University policies, which are available at <http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete> and <http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal> respectively.

Dispute of Grade Policy

Students may discuss a grade on any exercise, project, or exam, and request a reconsideration of the grade assigned within a week of the grade being released. All such conversations will be confidential.

Scheduled Topics/Activities

The weekly schedule of topics is provided at the end of this Syllabus, and revisions will be posted on the course D2L site.

Classroom Behavior Policy

Recommended language:

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

We are all here to learn, to enjoy stretching our minds and expanding the domain of understanding. In a classroom setting, we do much of our learning as a group. In order for these to happen successfully, certain behaviors are expected of all students:

1. Attend every lecture and discussion, and please be on time.
2. Be respectful of others by being attentive, engaged, and quiet during lectures.
3. Text messaging, use of cell phones and music players, reading, and other non-class activities are distracting and disrespectful to others and will not be permitted when class is in session. Please leave the classroom if you must engage in these activities.
4. Do the readings, study well for quizzes and exams.
5. Participate in a positive manner during discussions; express your opinions and listen to and respect those of others.
6. Encourage your fellow students in their own learning process. For the duration of this course we are a community.

Please refrain from disruptive conversations with people sitting around them during lecture. Students observed engaging in disruptive activity will be asked to cease this behavior. Those who continue to disrupt the class will be asked to leave lecture or discussion and may be reported to the Dean of Students.

Additional Resources for Students

UA Academic policies and procedures are available at <http://catalog.arizona.edu/policies>

Student Assistance and Advocacy information is available at <http://deanofstudents.arizona.edu/student-assistance/students/student-assistance>

COVID and our health

- **Classroom attendance:**

- If you feel sick, or if you need to isolate or quarantine based on [University protocols](#), stay home. Except for seeking medical care, avoid contact with others and do not travel.
- Notify your instructor(s) if you will be missing a course meeting or an assignment deadline.
- Non-attendance for any reason does **not** guarantee an automatic extension of due date or rescheduling of examinations/assessments. Please communicate and coordinate any request directly with your instructor.
- If you must miss the equivalent of more than one week of class, please contact the Dean of Students Office DOS-deanofstudents@email.arizona.edu to share documentation about the challenges you are facing.
- Voluntary, free, and convenient [COVID-19 testing](#) is available for students on Main Campus.
- If you test positive for COVID-19 and you are participating in on-campus activities, you must report your results to Campus Health. To learn more about the process for reporting a positive test, visit the [Case Notification Protocol](#).
- The COVID-19 vaccine and booster is available for all students at [Campus Health](#).
- Visit the [UArizona COVID-19](#) page for the most up-to-date information.

Confidentiality of Student Records

<http://www.registrar.arizona.edu/personal-information/family-educational-rights-and-privacy-act-1974-ferpa?topic=ferpa>

University-wide Policies link

Links to the following UA policies are provided at <https://academicaffairs.arizona.edu/syllabus-policies> including:

- Absence and Class Participation Policies
- Threatening Behavior Policy
- Refusal to conform to University COVID health procedures
- Accessibility and Accommodations Policy
- Code of Academic Integrity
- Nondiscrimination and Anti-Harassment Policy
- Subject to Change Statement

Special Needs and Accommodations

Students who need special accommodation or services should contact the Disability Resources Center, 1224 East Lowell Street, Tucson, AZ 85721, (520) 621-3268, FAX (520) 621-9423, email: uadrc@email.arizona.edu, <http://drc.arizona.edu/>. You must register and request that the Center or DRC send me official notification of your accommodations needs as soon as possible. Please plan to meet with me by appointment or during office hours to discuss accommodations and how course requirements and activities may affect your ability to participate fully. The need for accommodations must be documented by the appropriate office.

Student Code of Academic Integrity

I count on every student to respect and follow the University's Code of Academic Integrity, and I will take violations of this trust very seriously. Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. I reserve the right to investigate possible evidence of plagiarism using the tools available to University faculty. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See: <http://dos.web.arizona.edu/uapolicies/>.

Course schedule

The course schedule is provided as a separate document appended to this Syllabus