

**SOCR 796, Group Study: Genome Editing in Plants  
Spring 2019**

**Instructor:** Stephen Pearce

**Office:** C134 Plant Sciences (1<sup>st</sup> floor, center wing)

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**Phone:** (970) 491-1427

**Office hours:** Every day after class. If you need to see me outside of office hours feel free to stop by my office or make an appointment and I will do my best to make myself available.

**Time/Place:** Tuesday, 3-3:50 pm, C123 Plant Sciences.

**Text:** None required. We will discuss peer-reviewed research selected during the course.

**Objectives:** Students who take this course will achieve the following:

1. Learn how to implement efficient literature searches using tools and databases.
2. Gain a broad understanding of different genome editing tools in plants, including their advantages and drawbacks.
3. Using case studies, understand the diverse applications of genome editing in plant biology.
4. Discuss some of the societal and ethical issues concerning the applications of genome editing.

**Required activities:** Students in this course are expected to:

- Read the assigned publication ahead of class each week.
- Attend and participate in class. Every student is expected to contribute to every discussion.
- For at least one class during the course, each student will select a relevant paper, provide a summary and lead the in-class discussion.
- Write a short research proposal, describing a research objective incorporating a genome editing application.

**Encouraged activities.** The following will help you learn more:

- Attend seminars on campus in the area of plant molecular biology.
- Read beyond the assigned material.
- Explore online genome editing resources.

**Some examples of online genome editing resources:**

- Addgene public plasmid repository resources: <https://www.addgene.org/crispr/>
- Thermo-fisher genome editing learning center:  
<https://www.thermofisher.com/us/en/home/life-science/genome-editing/genome-editing-learning-center/genome-editing-resource-library.html>
- Sign up to receive alerts for publications in plant genome editing:
  - MyNCBI - <https://www.ncbi.nlm.nih.gov/account/>
  - Google scholar: <https://scholar.google.com/schhp?hl=en>

**Grading:** 2-3 page research proposal, peer reviewed 25%  
 Class participation 75%

**Preliminary schedule:**

Week	Date	Topic	Who
1	Jan. 22	Introductions, course overview and expectations.	
2	Jan. 29	Applications and potential of genome editing in crop improvement (Zhang et al. 2018; Genome Biology 19:210)	Stephen
3	Feb. 5	Tools and design – genome editing tool choice (including ZFN and TALENs)	Federico
4	Feb. 12	Tools and design – CRISPR “decorations”	Andrew
5	Feb. 19	Tools and design - TBD	Katy
6	Feb. 26	Tools and design	
7	Mar. 5	Applications	
8	Mar. 12	Applications	
9	Mar. 19	<b>Spring Break, no class.</b>	
10	Mar. 26	Applications	
11	Apr. 2	Applications	
12	Apr. 9	Applications	
13	Apr. 16	Ethics/regulation	
14	Apr. 23	Ethics/regulation	
15	May. 7	Ethics/regulation	
16	May. 14	Finals week	

**Principles of Community**

In this course we strive to follow and extend Colorado State's University's Principles of Community, and welcome spirited discussion, lively debate and pursuit of knowledge in a manner that respects each of us as individuals.

The Principles of Community support the Colorado State University mission and vision of access, research, teaching, service and engagement. A collaborative and vibrant community is a foundation for learning, critical inquiry, and discovery. Therefore, each member of the CSU community has a responsibility to uphold these principles when engaging with one another and acting on behalf of the University.

**Inclusion:** We create and nurture inclusive environments and welcome, value and affirm all members of our community, including their various identities, skills, ideas, talents and contributions.

**Integrity:** We are accountable for our actions and will act ethically and honestly in all our interactions.

**Respect:** We honor the inherent dignity of all people within an environment where we are committed to freedom of expression, critical discourse, and the advancement of knowledge.

Service: We are responsible, individually and collectively, to give of our time, talents, and resources to promote the well-being of each other and the development of our local, regional, and global communities.

Social Justice: We have the right to be treated and the responsibility to treat others with fairness and equity, the duty to challenge prejudice, and to uphold the laws, policies and procedures that promote justice in all respects.

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**Need Help? Rams Take Care of Rams**

Reach out and ask for help if you or someone you know is having a difficult time. Always feel free to come and talk to me; I will always make myself available to help connect you with any resources you need. CSU is a community that cares for you. If you are struggling with drugs or alcohol and/or experiencing depression, anxiety, overwhelming stress or thoughts of hurting yourself or others please know there is help available. Counseling Services has trained professionals who can help. Contact 970-491-6053 or go to <http://health.colostate.edu>. If you are concerned about a friend or peer, tell someone by calling 970-491-1350 (or visit <http://safety.colostate.edu/tell-someone.aspx> ) to discuss your concerns with a professional who can discreetly connect the distressed individual with the proper resources. Rams take care of Rams.

**This course will adhere to the Academic Integrity Policy {Section 1.6} of the Colorado State University General Catalog, the Student Conduct Code, and University Principles of Community.**

Please refer to The University Principles of Community found on page 9 of this syllabus.

Please refer to our cheating and plagiarism policy found on the Canvas homepage and page \_\_ of this syllabus.

Student Conduct Code: <http://www.conflictresolution.colostate.edu/conduct-code.aspx#conduct>

Colorado State University General Catalog: <http://www.catalog.colostate.edu/>

**Title IX: Sexual Assault, Sexual Violence, Sexual Harassment:**

CSU’s Discrimination, Harassment, Sexual Harassment, Sexual Misconduct, Domestic Violence, Dating Violence, Stalking, and Retaliation policy designates faculty and employees of the University as “Responsible Employees.” This designation is consistent with federal law and guidance, and requires faculty to report information regarding students who may have experienced any form of sexual harassment, sexual misconduct, relationship violence, stalking or retaliation. This includes information shared with faculty in person, electronic communications or in class assignments. As “Responsible Employees,” faculty may refer students to campus resources (see below), together with informing the Office of Support and Safety Assessment to help ensure student safety and welfare. Information regarding sexual harassment, sexual misconduct, relationship violence, stalking and retaliation is treated with the greatest degree of confidentiality possible while also ensuring student and campus safety.

Any student who may be the victim of sexual harassment, sexual misconduct, relationship violence, stalking or retaliation is encouraged to report to CSU through one or more of the following resources:

-Emergency Response 911

-Deputy Title IX Coordinator/Office of Support and Safety Assessment (970) 491-1350

-Colorado State University Police Department (non-emergency) (970) 491-6425

Please Visit: <http://oeo.colostate.edu/title-ix-sexual-assault> for more information.

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### **Plagiarism and Academic Integrity**

We take the issue of academic integrity very seriously in this course. You are expected to do your own work and to not access notes or the web during an exam, copy from someone else's exam or to provide exam answers to another student during an exam. We reserve the right to proctor all exams and will take actions to ensure that all students are following this policy.

#### Plagiarism

"Plagiarism includes the copying of language, structure, ideas, or thoughts of another, and representing them as one's own without proper acknowledgment. Examples include a submission of purchased research papers as one's own work; paraphrasing and/or quoting material without properly documenting the source" (CSU Policies and Guiding Principles, 2017-2018).

Our motivation for rigorously enforcing a no-plagiarism policy is twofold: First, plagiarism is a form of theft. Taking someone else's words or ideas without attribution is stealing someone else's work. Second, copying someone else's work does not fulfill the purpose of the assignment, which is for you to develop critical thinking and analysis skills. You demonstrate this by presenting your own, new, synthesis and analysis in your writing. Simply copying or paraphrasing from source materials does not demonstrate this, however insightful the source(s) may be. Good writing generates new knowledge. This should be your goal in this class, in other courses at CSU and in your career after you leave here.

In this course all written work will be spot checked for plagiarism issues by both instructors and originality checking software such as VeriCite. If you are caught plagiarizing materials you will receive a 0 for the assignment/exam/project, and depending upon the severity of the offense, an F in the course. All examples of plagiarism or academic dishonesty and will be reported to the Office of Conflict Resolution and Student Conduct Services for additional disciplinary action as outlined in the student handbook under the heading "academic integrity/Misconduct" (<http://catalog.colostate.edu/general-catalog/policies/students-responsibilities/> ).