The Creative Component: Planning Your Project

July 20, 2018
Creative Component Overview

• Learning objectives inherent in completing a creative component project

• Expectations for creative component projects

• Identifying a creative component topic and developing a project proposal

• Avoiding plagiarism and copyright infringement
Creative Component Purpose

• Develop ability to integrate knowledge to address an issue

• Sharpen and apply problem-solving skills developed in coursework

• Demonstrate mastery of chosen topic

• Enhance development of communication skills in writing and oral presentations
Creative Component Expectations

• Show independence and creativity
• Document by a well-written report
• Related to agronomy
• Interesting and applicable to you
• Project approved by and defended before graduate Program of Study Committee (POSC)
Creative Component Planning

Characteristics of a good topic

• You are interested in and motivated to learn about
• Is relevant to agronomy and hopefully to your career/personal goals
• Has a clear set of objectives to be developed
• Has sufficient primary literature sources available
• Results in a novel product that provides new information or new synthesis of existing information
Creative Component Project Types

Research Projects

• Field Experiments
• Greenhouse Experiments
• Laboratory experiments
• Data analysis and interpretation
• If researching company proprietary information, specifics must be made general (Hybrid A, Chemical B, Inbred C)
• Get permission from supervisor and company legal
Creative Component Project Types

Research Projects: Scientific Method

• Recognition of a problem or opportunity
• Development of a hypothesis
• Design and conduct of an experiment to test the hypothesis
• Explanation of results via statistical analysis in form of charts & graphs
• Statement of conclusions based on the results of the experiment
Creative Component Project Types

Research Projects: Experiment Development

- Determine treatments to be applied
- Specify variables to be measured
- Define inference space
- Select experimental units
- Develop experimental layout
- Specify the analysis
Creative Component Project Types

Research Projects: Examples

• Assessment of soil moisture tension’s impact on seed yield and disease in *Papaver somniferum* (Opium Poppy), by Devin Kiekel

• Greenhouse Experiment
Creative Component Project Types

Research Projects: Examples

• Evaluating the effect of foliar nutrient applications on seed maize yield by Carl Parker

• Field Experiment
Creative Component Project Types

Research Projects: Examples

• Quantitative prediction of biochar soil amendment by near-infrared reflectance spectroscopy by Ross Allen

• Laboratory Experiment
Creative Component Project Types

Research Projects: Examples

- Climate change and its impact on Iowa agriculture: Focusing on change in frost dates by Melissa Hastings

- Data Analysis and Interpretation
Creative Component Project Types

Educational Projects: Literature Review

• Evaluates and synthesizes existing literature to develop and support a topic about an agronomic issue
• Proper breadth of topic important
• Output is a thorough and comprehensive written report about the topical area
• Extensive use of references
Creative Component Project Types

Educational Projects: Literature Review Examples

• The under-appreciated roles of viruses in agroecosystem management by Kacy Wentzell

• Arbuscular mycorrhizal fungi in agroecosystems: Prospects for reducing nutrient contamination of waterways by Michelle Wenisch

• A review of current literature related to nitrogen use efficiency by Matthew McKenna
Creative Component Project Types

Educational Projects: Instructional Module

• Summarizes and teaches a topic, used to:
  • Broaden knowledge of lesser known issues
  • Introduce a topic to a new audience
  • Explain or simplify a complicated topic
  • Document a process or system for training purposes

• Three components: introduction, module & quiz
Creative Component Project Types

Educational Projects: Instructional Module Examples

- **sUAS in agriculture**, by Matthew Bilslend

**Types of sUAS**

**Fixed Wing**

One design of sUAS is called a **fixed wing drone**. This fixed wing has a **simple design** with a **single powered motor** in the front, just like a regular propeller plane. This type of drone allows it to have a gliding effect in the air. The fixed wing drone has a **fast airspeed** and a **long battery life**.

Source: https://www.google.com/search?q=tempest+drones&biw=800&bih=555&tbm=isch&source=lms&sa=X&ved=0ahUKEwim7e4nXKfWAhUKHj9JCMqYCQD#imgrc=kSH-jV0DQULoM%3A

https://www.google.com/search?q=tempest+drones&biw=800&bih=555&tbm=isch&source=lms&sa=X&ved=0ahUKEwim7e4nXKfWAhUKHj9JCMqYCQD#imgrc=AKnEBqREIjVNoM%3A
Creative Component Project Types

Educational Projects: Instructional Module Examples

• Identification and management of Goss’s bacterial wilt and leaf blight in maize, by Darcy Kroemer

Introduction

What is Goss’s Bacterial Wilt and Leaf Blight?

- Serious disease impacting corn
  - Also impacts sweet corn, popcorn, and sorghum
- Caused by the bacterium *Clavibacter michiganensis* subsp. *nebraskensis* (Jackson et al., 2007).
- Can occur as a vascular wilt or a leaf blight
- First identified in Nebraska in 1969 (Langemeier et al., 2017).
  - Since then, has gone through periods of reemergence and spread throughout the Midwest

Figure 7: Leaf blighting caused by Goss’s wilt (University of Nebraska-Lincoln, 2009).
Creative Component Project Types

Educational Projects: Instructional Module Examples

• Common spring Canola diseases, by Dion Nagy

Sclerotinia Stem Rot

Sclerotinia stem rot can be identified by premature ripening of plants and progress to bleached stems that tend to shred or break. Hard black sclerotia inside stems near base of stalk and other bleached areas can also be found. Sclerotia bodies can also be found in the grain after harvest. The disease is common in all canola growing areas and it can be sporadic. When the disease is present in a field, it can be severe. Yield loss equivalent to approximately one-half of the percentage of infected plants observed in a field; example: 10% infection results in 5% yield loss.
Creative Component Project Types

Educational Projects: Case Study

• Descriptions and analyses of a problem or event

• Accumulation of documentation to give overall background of situation

• Discussion of various decisions based on all information

• Identification of decision and rationale

• Teachable points - what can be learned from this experience for others
Creative Component Project Types

Educational Projects: Case Study Examples

- A decision case study: Effects of conservation management practices on a northwest Iowa floodplain by Kim Thayer
Creative Component Project Types

Educational Projects: Case Study Examples

- Building a sheep ranch in northern Minnesota by Bonnie Hasbrouck
Creative Component Project Types

Educational Projects: Field Guide

• Synthesizes available information
• Organized into a format useful for agronomists or other audiences
• Information you have looked for but can’t readily find in one source
Creative Component Project Types

Educational Projects: Field Guide Examples

- Alfalfa Field Guide by Lucas Westerman
Creative Component Project Types

Educational Projects: Field Guide Examples

- Field guide for the suburban Minnesota vintner by Catherine Zeitler

Cultivar Selection

The cultivar selected for planting will depend on the climate and the vintner’s specific needs or interests. The University of Minnesota has created many cold-hardy cultivars by breeding European varieties of Vitis vinifera with native Vitis riparia grapes so they are able to withstand the harsh winters. There are many grape varieties recommended for the northern climates that are good for making wine, juices, jellies, or for just eating. However, this guide focuses on the University of Minnesota-developed Frontenac and Edelweiss (developed with Elmar Swenson) varieties already growing and the Frontenac and Marquette varieties to be planted in the spring that will be used for making wine. See Appendices A (Edelweiss), B (Frontenac), and C (Marquette) for detailed fact sheets.
Creative Component Project Types

Other Project Types: Survey

- **Attitudes, awareness and perceptions of science and agriculture among Colorado and Iowa high school (9-12) science, math and agriculture teachers**, by Vanessa McCracken

- **Challenges and opportunities of field data management**, by Margaret Johnson

- **Long-term student benefit of international agricultural study abroad courses**, by Bob Butcher
Creative Component Project Types

Other Project Types: student innovation

• Agronomy Guy’s Guide to Crop Diagnostics, by Matthew Wilson
• Ebook field guide
Creative Component: Starting your project

• Start with finding ideas for a project
  • Personal interest
  • Professional interest
  • Coursework projects

• Timing in program – policy change
  • OLD: before halfway (6 courses/18 credits)
  • NEW: Preferably before by the time you have completed 4 courses (12 credits)
Creative Component: 599M Seminar

• Have a topic idea ready?
• Take 599M seminar (1 credit)
• Assignments designed to develop your idea
• Identification of problem/issue and your plan
• Idea – outline – paragraph outline – proposal
• Develop reference list
• Students have reported that the effort required will most likely feel like more than 1 credit due to the planning and writing involved
Creative Component: Program of Study Committee

- During the 599M semester, your instructor (Dr. Westgate) will make a suggestion for a major professor based on your topic idea.
- You are responsible for contacting the faculty members suggested to you.
- Dr. Westgate will be an automatic 2nd member of your committee (as program director).
- You are welcome to invite a work supervisor as a third, unofficial member/mentor, or another faculty member if you wish.
**Creative Component: Role of Major Professor**

- After conclusion of 599M seminar, your proposal should be the starting point of your communication with your major professor.
- Your major professor is your first contact about your project for questions and planning.
- Communication is your responsibility! Keep your MP informed of your project progress.
- When writing, develop a plan with your major professor for review and return of feedback.
Creative Component: Role of Graduate Committee

• Provides additional advising during the development and progress of your project

• Approves POSC

• Reviews the written creative component prior to defense

• Conducts the final oral examination
Creative Component: Finishing your project

- For the duration of your project, you do not need to register for 599M credits after the seminar semester
- Try to time the completion of your project with the end of coursework or shortly after
- When your project and written document are complete, you will be ready for your Final Oral Examination, also known as defense
- You register for your final 2 599M credits the semester of your defense
Creative Component: Your Defense

• Your defense is strictly about your project! *It’s not a quiz about coursework*
• If at all possible, it’s preferable for you to return to ISU for your defense
• You will give seminar (in PPT form) to your committee and interested others
• You will have a private discussion about your project with your committee
• Committee will have suggestions for edits to your written document
## Creative Component Archive

Each M.S. Agronomy student must complete a creative component project in order to graduate.

### Icon Legend
- Research Project
- Literature Review
- Case Study
- Instructional Module
- Survey
- Field Guide
- Other

### Spring 2018

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<th>Project Number</th>
<th>Title</th>
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<td>A study of the Martin farm in Dalton, Nebraska, by Neil Martin</td>
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<td>195</td>
<td>The under-appreciated roles of viruses in agroecosystem management, by Kacy Wentzell</td>
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<td>194</td>
<td>Aerial application of cover crop seed into a standing corn crop, by Candy Thomas</td>
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<td>193</td>
<td>sUAS in agriculture, by Matthew Billsend</td>
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<td>192</td>
<td>Preemergence greenhouse application of micro-encapsulated acetochlor, by Jenny L. Krebel</td>
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<td>191</td>
<td>Pesticide formulation types and development, by Jennifer Bear</td>
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<td>190</td>
<td>Evaluation of soybean grain yield as influenced by soybean seeding rate and fomesafen herbicide, by Paul Parcher</td>
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<td>189</td>
<td>Molybdenum effects on muskmelon (Cucumis melo L.) seedlings, by Sheri K. McLane</td>
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Creative Component Help: Writing Guide

Writing Guide Index

Introduction
Lesson 1: Academic Integrity
Lesson 2: Citation Guide
Lesson 3: Research Tips
Lesson 4: Mechanics of Writing
Lesson 5: Writing With Fluency
Lesson 6: Writing Persuasively
Lesson 7: Sample Writings
Lesson 8: References
Lesson 9: Additional Resources for Students

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Creative Component: Image Permissions

Avoiding Copyright Infringement

- Obtaining permission
- Documenting permission
- Citing your source
- Available resources
Creative Component: Image Permissions

Obtaining permission

• When permission is needed
• Public domain defined
• Details to include in the request
• Who can grant permission
Creative Component: Image Permissions

Citing your source: In-text citation

• Text
• Tables
• Graphs and charts
• Maps
• Illustrations and diagrams
• Photos
• Special wording as stipulated by the original author or publisher
• Attributing yourself
Creative Component: Image Permissions

Citing your source: References page

- Alphabetical
- Formatting
- Online-only journal vs. printed journal also available via the web
- DOI vs link
**Creative Component: Image Permissions**

**Available Resources**

- Deborah Burns
- Agronomy Dev Lab
- MS Agronomy Writing Guide ([https://courses.agron.iastate.edu/tools/writing-guide](https://courses.agron.iastate.edu/tools/writing-guide))
- ISU Writing and Media Center Writing Resource ([https://www.dso.iastate.edu/wmc/resources](https://www.dso.iastate.edu/wmc/resources))
- Library Web Resources ([http://www.lib.iastate.edu/help-services/teaching-class/copyright-info](http://www.lib.iastate.edu/help-services/teaching-class/copyright-info))
Creative Component Help: Avoiding Plagiarism

• Plagiarism is the unauthorized use or close imitation of the language and thoughts of another author without acknowledgement.

• Consequences of plagiarism can result in dismissal from ISU.

• Plagiarism Software: iThenicate

• iThenticate compares a submitted document to an extensive database of published and unpublished works.

• The software gives a similarity score, but does not determine if an instance of similarity constitutes plagiarism.

• MS Agronomy policy (per Dr. Loynachan) 15%
Creative Component Help: Avoiding Plagiarism

- MS Agronomy will submit all creative components submitted for defense to iThenticate.
- If there is cause for concern, appropriate edits can be made before final copy is submitted for graduation.
- Graduate students can request an iThenticate account.
- [https://www.vpresearch.iastate.edu/plagiarism-checker-software/](https://www.vpresearch.iastate.edu/plagiarism-checker-software/)
- Submit *iThenticate - Graduate Student Access Request*
## Creative Component Help: iThenticate Report

### Originality Report

9%

### Similarity Index

#### Primary Sources

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In the absence of other weed competition, a single waterhemp plant has the reproductive capacity to produce an average of over 250,000 seeds (Sellers et al., 2003). Other characteristics, such as greater persistence and seed viability (Buhler and Hartzler, 2001) along with an extended germination period (Hartzler et al., 1999) compared to other annual weeds, contribute to making waterhemp difficult to manage.

In response to the increased risk of glyphosate-resistant waterhemp, farmers began to include other herbicide chemistries in their weed management programs that utilized different sites of action and modes of action than that of glyphosate. Of these chemistries, there was a resurgence in the use of herbicides possessing the protoporphyrinogen oxidase (PPO) inhibitor site of action (Group 14), which were commonly used for post-emergence (POE) broadleaf weed control in soybean prior to the introduction of glyphosate-tolerant soybeans. The usage of PPO-inhibitors in pre-emergence (PRE) and POE herbicide applications in soybean quickly gained momentum because they showed acceptable activity on glyphosate-resistant waterhemp.

PPO-inhibitor herbicides in the diphenylether chemical family, particularly
Creative Component Help: Writing Consultant

- Deborah Burns, Technical Writing Consultant
- Rewritten MS Agronomy writing guide
- Assists at any stage of writing process: brainstorming, organizing ideas, proposals, final drafts
- Important for creative component, but also available for course writings – papers, presentations, projects.
- Offers one-on-one consultations.
- Make appointments through ISU Center for Communications appointment site: http://dwcisu.appointy.com or email at dlburns@iastate.edu
Creative Component Help: Library Research

I have created general subject guides for agronomy, horticulture, genetics, plant pathology, microbiology, and kinesiology. In addition, there are some course specific guides as well. My intent here is to enable you, the researcher, the student, or the visitor, to be able to find useful information via the guides, on topic areas as listed.

My Guides

- Agricultural Statistics Research Guide
- Agriculture (Plants & Crops) Research Guide
- AGRON 469: World Climates
- Agronomy Research Guide
- Citizen Science
- DANCE 360: History and Philosophy of Dance
- Environmental & Agricultural Documentaries
- Horticulture
- Kinesiology Research Guide
- Martial Arts & Tai Chi
Questions?