

Developing Online Pedagogical Content Knowledge Learning Opportunities for Elementary Agriculture Teachers

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Introduction

Agriculture Education

- Agriculture Educators traditionally certified to teach at middle and high school levels
- Georgia expanded formal teaching to elementary level (Georgia Senate Bill 330, 2018)
- Certification and training for teaching at the elementary level does not exist
- Little research has been done on developing standards for elementary agriculture education (EAE) (Peake et al., 2020)

Benefits of Agricultural Education

- Learning about agriculture early on increases agricultural literacy
- Agriculture touches many areas of life (Hess & Trexler, 2011; Koy & Tarpley, 2020)
- Meets AAAE's National Research Agenda Priority 5, "Efficient and Effective Agricultural Education Programs"

Purpose

Develop EAE teachers to apply Pedagogical Content Knowledge (PCK) within teaching Food and Agricultural Sciences

Meets AAAE's National Research Agenda Priority 5, "Efficient and Effective Agricultural Education Programs"

How it Works

"Ag Ed 101" is an online Google classroom designed to prepare elementary agriculture teachers with appropriate PCK where

PCK is the result of knowing how to teach (pedagogy) the what to teach (content) (Shulman, 1986)

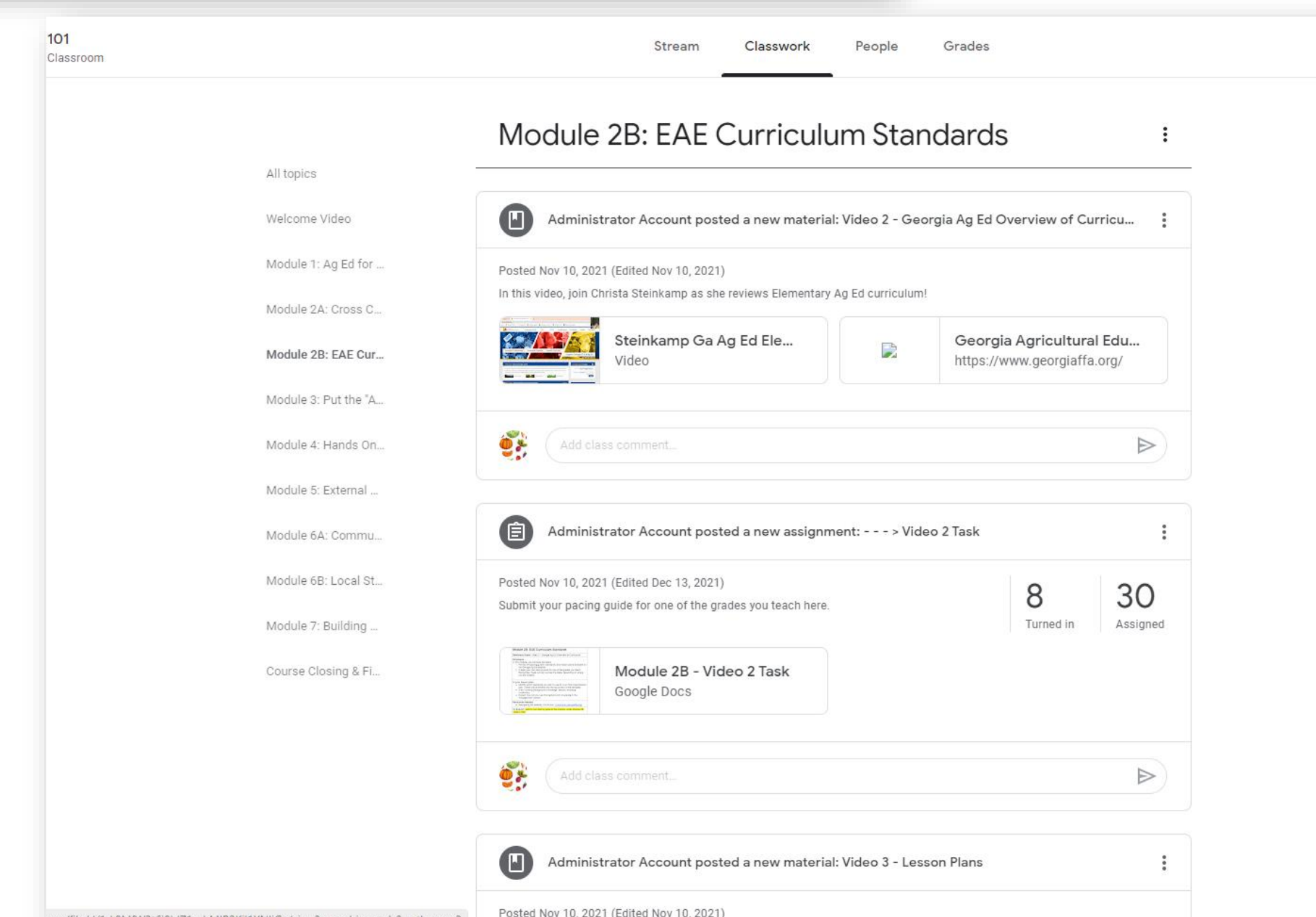
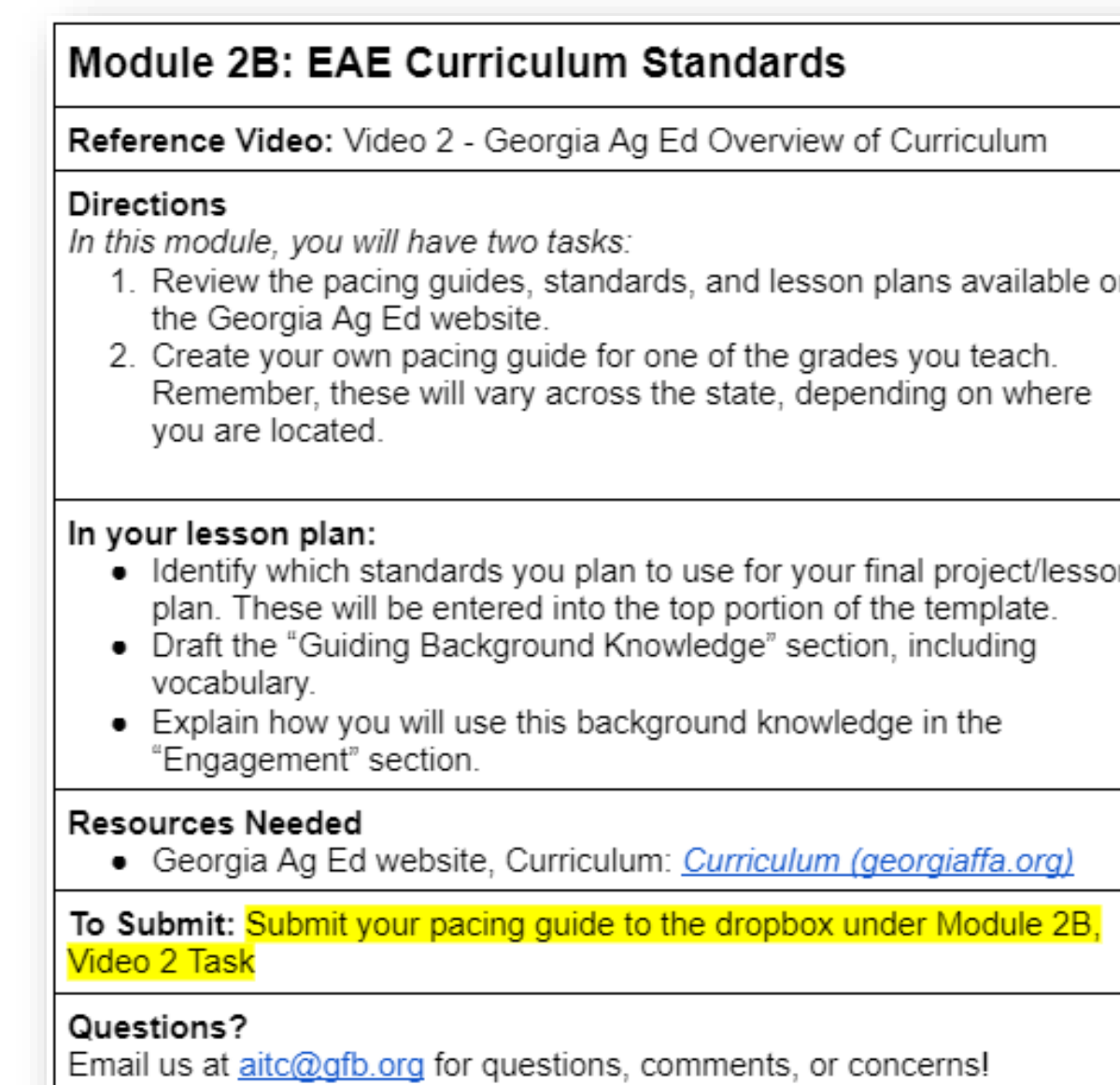
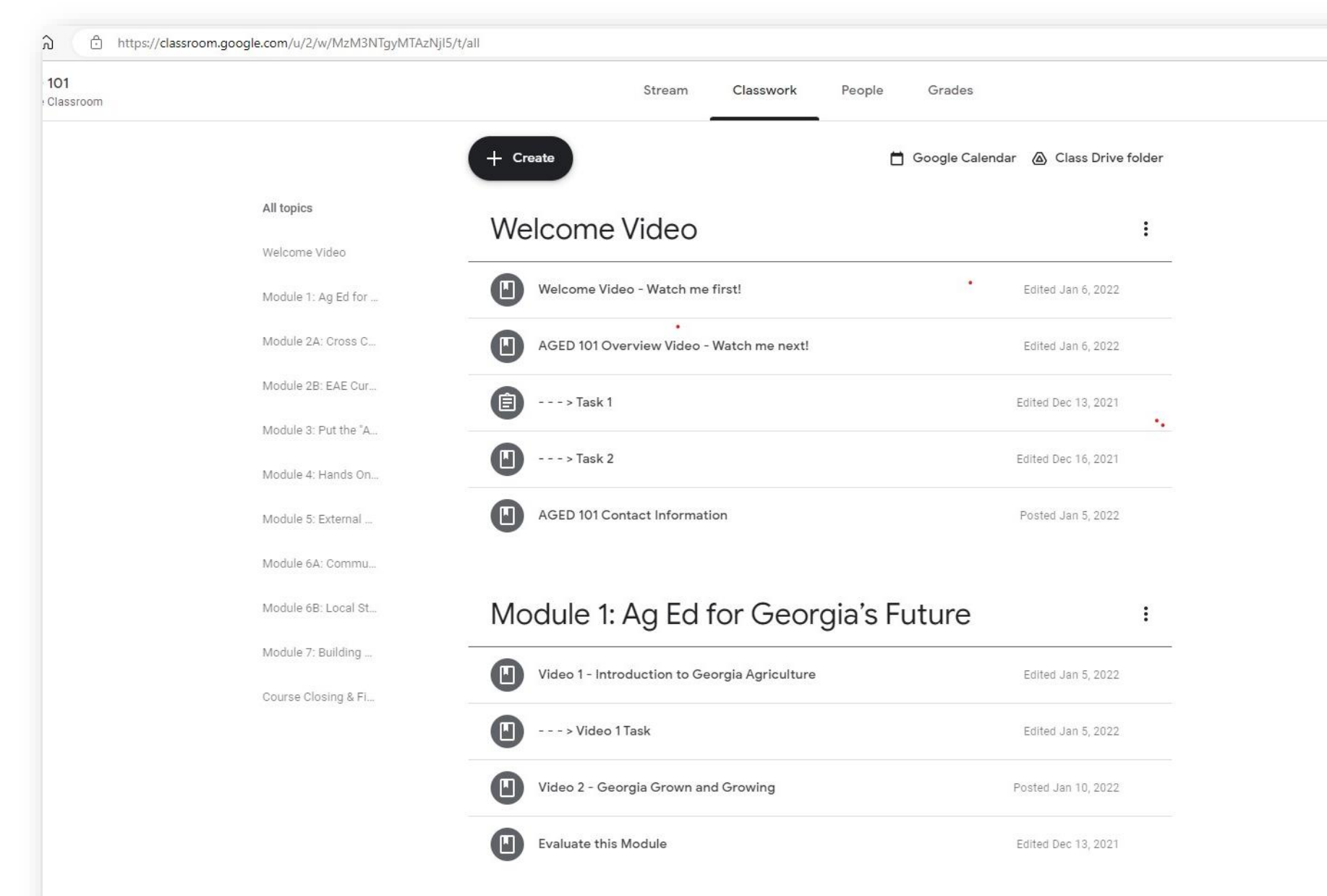
Components

- Introductory and Concluding modules
- Six learning modules
 - (1) Ag Ed for Georgia's Future
 - (2) Cross Curriculum and Ag / EAE Curriculum Standards
 - (3) Put the "A" (Ag) in S.T.E.M.
 - (4) Hands-On Learning
 - (5) External Resources
 - (6) Community partnerships / Local Steering Committees and Advisory Boards
- Each module has one to four videos, and accompanying task, assignment, or short quiz
- Modules feature various professionals and experts from organizations such as Farm Bureau, FFA, Georgia Department of Education, University of Georgia, and University of Georgia Extension

Results to Date

- Thirty-three teachers enrolled in the pilot round of Ag Ed 101
- Of the 33 teachers, five applied for and received mini-grants
- Associated in-person events following the pilot round included:
 - One all-day professional development workshop
 - Two focus groups dedicated to learning about elementary agriculture educators' school gardens

Examples of Ag Ed 101 in Action



Future Plans

- Ag Ed 101 first operated as a pilot
- Next step is to conduct a program evaluation

Context, Input, Process, and Product (CIPP) evaluation model (Stufflebeam, 1971)

- Guides improvement and decision-making in the education setting
- **Goal:** To answer, "What should we do? How should we do it? Are we doing it correctly? and Did it work?"
- Each component consists of three steps: determining, attaining, and sharing of pertinent information

Applying CIPP to Ag Ed 101

- **Context:** Will examine the precursory idea for the project versus where it stands now
 - EX: COVID-19 forced the class into an online format. What are unmet needs, potential opportunities, and main problems?
- **Input:** Will gather information pertaining to personnel, resources, and procedures, and examine research about any similar programs
 - EX: For videos featuring individuals no longer in those positions, should they be redone to reflect the organization's most up-to-date stance?
- **Process:** Will examine how the program functions
 - EX: What do data in the form of surveys, questionnaires, etc. suggest about barriers and future actions?
- **Product:** Will determine how the program meets its goals
 - EX: What are the set objectives, and do the criteria determine whether the program was successful?

Other Considerations

- **Participant recruitment:** Who is "allowed" to enroll in Ag Ed 101?
- **Content:** What other modules are needed?
- **Credibility:** Is Ag Ed 101 actually delivering what current and future EAE teachers need?
- **Expansion:** Can Ag Ed 101 be utilized in other states?

Costs

- No associated costs, but must consider resources such as state staff and others supports, and time to refresh the website/learning modules

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