Building Competency Based Master’s Programs

An Example of a CBE Program from Valdosta State University

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Valdosta State University
Lead Investigator for Competency Based Education Initiatives
University System of Georgia
VSU, In partnership with community... 

- Solicited by two local school districts
- An expressed need for STEM educators
- Focus on working (masters level) classroom educators
- Support from: 
  - GaPSC: advanced approval
  - GaDOE: startup grant
  - CAEL: JumpStart
  - USG: LMS support
CBE is an opportunity not simply a repackaging of the status quo.
VSU’s CBE Program Overview

- Online K-5 graduate level educator endorsements in Science and Math
- Authentic, project-based, rubric scored, mastery assessments
- May be cross-walked to courses
- Distributed faculty role (content experts, faculty facilitators & success coaches)
- Exclusive use of OERs
Program Tenets and Brand

YOU Succeed

VSU’s Personalized Learning Option

Accommodation of Personal Circumstance
Value-Added Outcomes
Affordability

Conceptual & Operational Program Tenets

Establish Fit
Align Tenets
Support Base
Modeling
Development
Onboarding
Activation
Next Steps
A clearly defined **curricular model** ensures the:

- *Organizational* and *Operational Architecture* for program domains, competencies, assessments, and learning experiences
VSU’s CBE Curricular Model
(Science Endorsement)

Identify Program Competency Domains

Create Domain Competencies

Grouping Competencies by C-Groups (courses?)

Program Outcome

- CDSC1 (Science Content)
- CDUC2 (Unifying Concepts)
- CDA3 (Assessment)
- CDTU4 (Technology Utilization)
- CDSR5 (Social Relevance)
- CDSP6 (Science Pedagogy)
- CDPD7 (Professional Development)

This arrangement is reflective of a term-based, course referenced CBE model. Students enroll by course and are expected to complete within a prescribed timeline.
VSU’s CBE Curricular Model
(Science Endorsement)

Identify Program Competency Domains

Create Domain Competencies

Grouping Competencies by C-Groups (courses?)

CDSC₁ (Science Content) → CSC₁, CSC₂, CSC₃ ... CSC₂₂
CDUC₂ (Unifying Concepts) → CUC₁, CUC₂, CUC₃ ... CUC₆
CDA₃ (Assessment) → CA₁, CA₂, CA₃
CDTU₄ (Technology Utilization) → CTU₁, CTU₂, CTU₃, CTU₄
CDSR₅ (Social Relevance) → CSR₁, CSR₂, CSR₃ ... CSR₅
CDSP₆ (Science Pedagogy) → CSP₁, CSP₂, CSP₃ ... CSP₁₂
CDPD₇ (Professional Development) → CPD₁, CPD₂, CPD₃

This arrangement is reflective of a nonterm-based, (perhaps course cross-walked) CBE model. Students enroll by program within subscription periods and move through the competencies at a pace not regulated by course completion timelines.
VSU’s CBE Curricular Model
K-5 Teacher Certification Science Endorsement
(51 competencies; Three graduate courses, 3 credit hour equivalency per course)
Curricular Content Development is a Collaborative, Coordinated Process

- Practitioners (Classroom Teachers)
- Academic Affairs
- Student Support Services
- Q. A. Reviewers
- Transcripting
- Metrics and Analytics Experts
- University Faculty (Content Experts)
- Information Technology
- Instructional Designers
- Registrar
- Resource Experts (OER)
- Financial Aid
- Fiscal Affairs

Program Coordinator

Administrative Liaison
Academic Liaison/Champion

Instructional Designers Competencies
Authentic Project-Based Mastery Assessments
Instructional Activities

Curricular Content Development is a Collaborative, Coordinated Process
In this module you will plan an activity to demonstrate the connections between science and mathematics using technology. STEM lessons always combine content areas together in one lesson just as scientists use mathematics and technology in real-world investigations. You will find the links below helpful in planning your activity.

**Required Activities**

**Title:** Physical science and Math Activity using technology (estimated on task time: 1 hour)

1. Access the Georgia Performance Standards for K-5 (Read the standards and become familiar with what students should know and be able to do in each grade level for both math and physical science). In the “Characteristics of Science” section for each grade level in the science standards, you will find grade level specifics for mathematical skills and tools, and technology specific to that grade.

   Science: [https://www.georgiastandards.org/Standards/Pages/BrowseStandards/ScienceStandardsK-5.aspx](https://www.georgiastandards.org/Standards/Pages/BrowseStandards/ScienceStandardsK-5.aspx)

   Math: [https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.aspx](https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.aspx)


CBE Learning Module EScTU₄ : K-5 Science Teaching Endorsement

<table>
<thead>
<tr>
<th>Competency(ies)</th>
<th>Mastery Assessment(s)</th>
<th>Learning Activity(ies)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Desired Result)</td>
<td>(Evidence of Result)</td>
<td>(Learning Experience)</td>
</tr>
</tbody>
</table>

EScTU₄: Plan an activity to demonstrate connections between physical science and mathematics using technology.

Describe in detail an activity that you can incorporate into a lesson that connects mathematics and physical science, using technology. Include the appropriate mathematical standard and science content and characteristics of science standards. Describe how technology can be used to demonstrate the connection between physical science and mathematics.

The assessment will be evaluated using the Physical Science - Competency TU₄ - Assessment Rubric. You can use this rubric as a reference as you complete this assignment.

Submit to the – Physical Science - Competency TU₄ – Dropbox.

In this module you will plan an activity to demonstrate the connections between science and mathematics using technology. STEM lessons always combine content areas together in one lesson just as scientists use mathematics and technology in real-world investigations. You will find the links below helpful in planning your activity.

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   **Math:** [https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.aspx](https://www.georgiastandards.org/Georgia-Standards/Pages/Math-K-5.aspx)


Overview Life Science Content (LSC)

Competency LSC4: Explain how adaptations, behaviors, and external features affect the survival or extinction of organisms.

In this module you will...

Research plant and animal adaptations for survival and how the biome influences these adaptations.

State examples of organisms that use mimicry, camouflage, and chemical substances for survival. Explain how each of these adaptations aid in survival.

Choose a plant from each of the 7 biomes, identify the biome, illustrate the plant and describe the features it uses for survival in its habitat.

Identify reasons for past massive extinctions and explain the reasons that extinctions occur. Include a discussion of the consequences of extinction.
Learning Assessments

Formative Assessments

• Strategically embedded in the learning activities
• Evaluated by self-assessment, peers, Support Coach, or intelligent agent
• May be used as gateways to forward progression within a competency
• Variety of objective and subjective formats

Competency Mastery Assessment

• Project-based
• Must be implemented in an authentic setting
• Scored based on outcomes rubric
• Possible outcomes: 4=High Mastery; 3=Mastery; 2=Not yet mastered; 1=Not yet mastered
VSU’s CBE Operational Model

Function
- Programming
  - Program I.D.
  - Competencies
  - Project-based authentic mastery assessments
  - Learning experiences
- Delivery
  - Recruiting
  - Web-based onboarding
  - LMS accessible
  - Feedback Metrics
- Business
  - Financial Aid
  - Bursar
  - Registrar

Process/Product

Program metrics-based analytics for quality assurance/improvement
Program Implementation Team/Faculty

- Instructional Leader (Faculty of Record)
- Content Experts
- External Mastery Assessment Scorer
- Financial Aid
- Student Support Services
- Registrar
- Formative Assessment
- Personalized Advising
- Authentic Mastery Assessment
- Personalized Instructional Support
- Success Coach
- Bursar
- Information Technology
- eLearning
- Instructional Designers
- Metrics and Analytics Experts
- Transcribing
- Academic Affairs
- Financial Aid
- Onboarding
- Activation
- Next Steps

Establish Fit
Align Tenets
Support Base
Modeling
Development

Content Experts
External Mastery Assessment Scorer
Financial Aid
Student Support Services
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Personalized Advising
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Success Coach
Bursar
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Mapping a Preboarding / Onboarding Process

- Establish Fit
- Align Tenets
- Support Base
- Modeling
- Development
- Onboarding
- Activation
- Next Steps
Onboarding

- Do you have adequate time to allocate to your educational goals?
- Can you devote time for uninterrupted study?
- Do you work well independently and are you self-motivated?
- Do you enjoy reading?
- Do you want a flexible schedule?
- Do you enjoy working on a computer?
- Are you organized?
- Do you communicate well through writing?
- Do you have a reliable computer and internet service?

Self-Screening Criteria and Assessment-based Screening

- Perspective student completes online assessment
- Assessment “scored” via intelligent agent
- Results of assessment indicate suitability for CBE program participation
YOUSucceed
A Personalized Learning Option

Complete Your Academic Program through YOUSucceed at VSU.

Are you a self-motivated individual interested in a program that gives you a personalized education option without sacrificing faculty interaction? YOUSucceed empowers you to pursue your passions without interrupting your life commitments. YOUSucceed is a competency-based learning experience which allows you to integrate knowledge you already have with new skills you gain in the program.

WHAT IS YOUSUCCEED?
AVAILABLE PROGRAMS
CAN I AFFORD IT?
FAQS
Use of Behavioral Motivators

Establish Fit
Align Tenets
Support Base
Modeling
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Activation

Next Steps
<table>
<thead>
<tr>
<th>Timing</th>
<th>Trigger</th>
<th>Occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Competency completed.</td>
<td>Student receives a “High Mastery” or “Mastery” on a competency for the 1st time during enrollment.</td>
<td>Once per course.</td>
</tr>
<tr>
<td>First competency mastered at the highest level.</td>
<td>Student receives “High Mastery” for the 1st time on a competency in a course.</td>
<td>Once per course.</td>
</tr>
<tr>
<td>All competencies in a set completed.</td>
<td>Student receives a “Mastery” or “High Mastery” on all competencies in a competency set.</td>
<td>Once per C-set. Multiple times per C-group (course).</td>
</tr>
<tr>
<td>All competencies in a C-group (course) completed.</td>
<td>Student receives “Mastery” or “High Mastery” on all competencies in C-group (course).</td>
<td>Once per C-group (course).</td>
</tr>
</tbody>
</table>
Progression Metrics Dashboards

- Establish Fit
- Align Tenets
- Support Base
- Modeling
- Development
- Onboarding
- Activation
- Next Steps
Lessons Learned

• Non-term Billing can be a challenge
• Financial Aid challenges (Regular and Substantive Interaction, SAP)
• The importance of student preboarding /onboarding
• Administrative understanding & support is critical

Where to from here?

• Payment by student or B2B format?
• Go it alone or integrate within a system-level initiative?
• Integrate within the university or create satellite structure?
• Integration of badges/micro-credentials?
Getting started. . .

- Identify willing Sherpas
- Discover & nurture local champions
- Collaborate with other CBE programs
  
  *VSU ex.: UW, NAU, WGU*
- Connect with centers of expertise
  
  *VSU ex.: C-BEN, CAEL, Eduventures, D2L, UPCEA, ALG*
- Define a cost/return plan (see NCHEMS model)
- Embrace the chaos monkey
Thank You

Questions / Comments?

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