Composite Science BS

Goal 1: Proficiency of Graduates

Goal Description:

Prepare students seeking Composite Science certification to become successful 7th-12th grade science teachers based upon their knowledge of both science and pedagogy

Providing Department: Composite Science BS

Progress: Completed

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

G1O1: Content Proficiency

Learning Objective Description:

Students in the Composite Science program will be proficient in the content areas of the degree pertaining to astronomy, biology, chemistry, geology/earth science, and physics. The standards established by the National Science Teachers Association (NSTA) can be found at https://www.nsta.org/preservice/ .The coursework which comprises the science curriculum component of the degree was specifically selected in order to prepare students to meet these standards.

RELATED ITEM LEVEL 2

G1O1I1: TExES Exam (proficiency) - Indicator

Indicator Description:

Students will take the TExES exam.

Criterion Description:

80% of students taking the TExES exam will pass on their first attempt with a score of 80% or higher (minimum of 240 points). Those who do not pass on their first attempt will pass it on their second attempt. Students will take the TExES exam during their Methods Block. *Although students do not have to pass the test before doing their Student Teaching Block, they must pass the exam to receive certification. In addition, from the standpoint of program accountability, students must pass the test by their second attempt, though they can take it as many as five times.

Findings Description:

We had 8 students participate in our Science Teaching Methods (BIOL 3390) course. This course was designed to be the last science course and gateway preparation for the TEA mandated safety training, TExES assessment, and remediation for growth areas on the TExES assessment - in addition to preparations for science applications, legal considerations, and professional development planning.

In the past, students had to earn 80% or higher on the practice assessment to gain approval to take the TExES exam.

The 8 students completed a pre and a post-TExES practice exam. All students earned above 80% on the pre-assessment.

The 8 students complete the post TExES practice assessment after remediating on their lowest components. 7 students earned above 80% on the post-assessment. 1 student earned 73%.

RELATED ITEM LEVEL 3

G101/1: Representative Exam (Proficiency)

Action Description:

Since COVID, we have had more individuals just barely fail their TExES exam.

I have worked with Education to shift our criteria from 240 (80.0%) to 250 (83.3%) to gain approval to take the test. This is not arbitrary, but rather based on an additional set of questions.

We preliminarily made this adjustment and have had better success. We will continue to monitor and see if we need to adjust it a bit higher.

RELATED ITEM LEVEL 3

G1O1I2: TExES Exam (proficiency)

Action Description:

We were called in by Education (Dustin Hebert), as our passing scores dropped below the TEA standards. As we are a small program, they were not overly concerned, but wanted to see what our requirements were to ensure that we were taking the appropriate measures to prepare students for the TExES exam.

They (Education, Dustin) concluded that we require the same, or more, from our composite science students as other successful programs. We concluded that the best action was to increase the approval standards a bit (from 80% to 83.3%) and monitor - to see if we need to adjust again. To be honest, I had 2 students this summer barely fail it (even with the 83.3% standard). I am already convinced I need to adjust a bit higher.

RELATED ITEM LEVEL 2

G1O1I2: Science Methods Assignments (proficiency) - Indicator

Indicator Description:

Students will complete designated assignments which address critical thinking and scientific reasoning. These assignments are:

1. *a) NSTA research assignment, or similar assignment (completed in the Science Teaching Methods course)*
2. *b) The Texas Education Agency (TEA) Science Safety Training for High School certification course and exam (completed in the Science Methods course).*

   This course is a self-paced foundational training module for science safety at the high school level. The course provides a review safety policies, procedures, and responsibilities that pertain to instructional settings. Below is a link to the site which provides information about this course/certification.

   (https://www.texasgateway.org/resource-index/science%2520safety%2520training.)

Criterion Description:

Students will score 80% or higher on the NSTA/research assignment and all students will pass the safety certification course.

Findings Description:

We had 8 students participate in our Science Teaching Methods (BIOL 3390) course. This course was designed to be the last science course and gateway preparation for the TEA mandated safety training, TExES assessment, and remediation for growth areas on the TExES assessment - in addition to preparations for science applications, legal considerations, and professional development planning.

All 8 students completed and earned full credit on the Flinn Scientific safety modules and in-class safety assignment.

RELATED ITEM LEVEL 3

G101/3: Science Methods Assignments (proficiency)

Action Description:

All completed this assignment and passed. We will continue to keep this item, as it was required by TEA and with administrative turn-over (sometimes loss of institutional memory) it is important to keep track of it.

RELATED ITEM LEVEL 1

G1O2: Proficiency in Pedagogical Techniques

Learning Objective Description:

Students in the Composite Science program will demonstrate proficiency in pedagogical techniques used in science courses.

RELATED ITEM LEVEL 2

G1O2I1: Pedagogies for Teaching Science Content (proficiency) - Indicator

Indicator Description:

Scores on designated assignments (lesson plans) in the Science Methods course will be used to assess students' proficiency pertaining to pedagogical approaches used to teach science.

Criterion Description:

80% of students who complete the required assignments will earn a score of 80% or higher.

Findings Description:

We had 8 students participate in our Science Teaching Methods (BIOL 3390) course. This course was designed to be the last science course and gateway preparation for the TEA mandated safety training, TExES assessment, and remediation for growth areas on the TExES assessment - in addition to preparations for science applications, legal considerations, and professional development planning.

The 8 students were assigned content from their practice TExES assessment (typically their lowest). Based upon this content, they were tasked with creating a lesson plan, leading the lesson, and reflecting upon the experience.

Lesson Plan: 8 earned 100%, 1 earned 90%

Leading Lesson: 8 earned A's, 1 earned a B

Reflections: all earned A's

RELATED ITEM LEVEL 3

Action - G1O4I1: Pedagogies for Teaching Science Content (proficiency)

Action Description:

These assignments are based upon student content weaknesses on the practice TExES assessment. They appear to really improve outcomes for their second attempts.

We will continue to incorporate these assignments in the curriculum for BIOL 3390

Goal 2: Recruitment

Goal Description:

Work with Academic Affairs, CoSET, and Biological Sciences to improve visibility of the double major, advertise, and, ultimately, recruit.

Providing Department: Composite Science BS

Progress: Completed

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

G2O1: Order/Create Advertisement Materials

Learning Objective Description:

In order to recruit more effectively and be more visible on/off campus, we will need to create and order advertisement materials (table cloths, banners, update pamphlets, swag).

Goal 3: Build Community

Goal Description:

Establish events and avenues of communication to build a sense of community.

Providing Department: Composite Science BS

Progress: Completed

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

G3O1: Community Building Events

Learning Objective Description:

Work with the NSTA student organization (or reboot if necessary) to meet regularly and disseminate information about the program, graduation, etc.

Work with Biological Sciences to celebrate undergraduate milestones (i.e., graduation, passing assessments, shifting into teaching block, obtaining a job).

RELATED ITEM LEVEL 2

G3O1I1: Community - Indicator

Indicator Description:

Establish events and avenues of communication to build a sense of community.

Criterion Description:

We worked with CoSET to ensure that Composite Science majors knew they could walk with CoSET (instead of Education).

We worked with Biological Sciences to celebrate graduations at an after graduation mixer in the Life Science Building (both for Spring and Fall).

Findings Description:

We worked with CoSET to ensure that Composite Science majors knew they could walk with CoSET (instead of Education).

We worked with Biological Sciences to celebrate graduations at an after graduation mixer in the Life Science Building (both for Spring and Fall).

RELATED ITEM LEVEL 3

Action - G3O1I1: Events

Action Description:

Students were very pleased to hear they could walk with CoSET

and we had some graduates attend the after graduation celebration.

While I already email students about advising and graduations, I would like to work toward creating additional email communications about scholarships and events.

RELATED ITEM LEVEL 3

Action - G3O1I1: Materials Documentation

Action Description:

To be honest, I didn't have the energy to upload the documents for this. It sounded like a good idea at the time, but they were simple emails and e-card invites. I won't be including this in the future.

Update to Previous Cycle's Plan for Continuous Improvement Item

Previous Cycle's Plan For Continuous Improvement (Do Not Modify):

Closing Summary

In the 2023-2024 academic year, we will work on developing a recruitment plan to grow the program.

Greater effort will need to be made to ensure that all (or most) of the Composite Science students who take the CAT exams when they are in the FOS course. Greater effort will be made to report detailed results, rather than just pass/fail.

Templates and calendar reminders will be created for regular messaging to students.

We will conduct a survey to find ways to celebrate and promote our students and the major.

Update of Progress to the Previous Cycle's PCI:

Closing Summary

In the 2024-2025 academic year, we will actively work on developing a recruitment plan to grow the program. This was not done in the last cycle, but is sorely needed.

Based on near-failures or barley failed TExES exams, we will continue to raise the needed passing rate on the practice exam for approval. The EDUC Department assures me we are doing more than other areas to support students, so I feel this will be sufficient.

We will continue to include TEA requirements on this plan, as it helps with institutional memory.

Potential future plans:

1) We will likely need to create a transition plan, should I (Steven Koether) need to opt out of being the advisor for this group.

2) I would like to work with CoSET to find a way to regularly pull Ed/CmpSci major data from Cognos for communication - or - learn how to pull it myself. In the past, it always felt a bit confusing.

New Plan for Continuous Improvement Item

Closing Summary:

In the 2024-2025 academic year, we will actively work on developing a recruitment plan to grow the program. This was not done in the last cycle, but is sorely needed.

Based on near-failures or barley failed TExES exams, we will continue to **raise the needed passing rate on the practice exam for approval**. The EDUC Department assures me we are doing more than other areas to support students, so I feel this will be sufficient.

We will **continue to include TEA requirements** (i.e., safety, TExES passing rates, Practice modules) **on this plan**, as it helps with institutional memory.

Potential future plans:

1) We will likely need to create a **transition plan,** should I (Steven Koether) need to opt out of being the advisor for this group.

2) I would like to work with CoSET to **find a way to regularly pull Ed/CmpSci major data** from Cognos for communication - or - learn how to pull it myself. In the past, it always felt a bit confusing.