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BS Geology - 2020

Major-NH-PHSC-Geology, All Options (BS) 2020

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Major-NH-PHSC-Geology, All Options (BS)

2020

Completed

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Institutional Mission

Arkansas Tech University is dedicated to student success, access, and excellence as a responsive campus community providing opportunities for progressive intellectual development and civic engagement. Embracing and expanding upon its technological traditions, Tech inspires and empowers members of the community to achieve their goals while striving for the betterment of Arkansas, the nation, and the world.

Program Mission

The mission of the Arkansas Tech University Geology Program is to provide a broad-based geological education with an emphasis on technological and field skills through continued improvement and success in teaching, community outreach, and research.

| Program Learning Outcomes | | Expectations/Target for this Outcome | Findings/Results |
|---|--|--------------------------------------|------------------|
| <p>1 Calendar Year Assessment Information 2020</p> <p>APPROVALS & INFORMATION BLOCK (**NOTE**. This block provides a brief description of actions taking place (or planned to take place) during the current assessment cycle. If there are more (or less) outcomes assessed, please alter as necessary. Additional comments are also welcome.) Point of Contact for this year’s assessment (add additional names as needed): 1) Jason Patton 2) APPROVALS</p> <p>----- Department Head Approval: Date: Dean Approval: Jeff Robertson Date: 2021 July 2 Office of Assessment Approval: C. AUSTIN Date: 14 JUL 21</p> <p>----- Program Level Context: (ex. Second year using Weave Assessment Management System, or ADHE Program Review conducted on 3/15/20) Student Learning Outcomes Assessed during Calendar Year 2020 (Add more as necessary): Outcome 1: 1.1 Curriculum Committee Proposals or Changes (erase choice not used): Y / N Assessment Data Used as Support for Change: (give Outcome #) Is Status of Project Noted in Title Bar Current? (erase choice not used): Y / N Change status in title bar above Are All Attachments Noted in Assessment Plan Added Below? (erase choice not used): Y / N ----- Additional Comments:</p> | | | |

| Program Learning Outcomes | | Expectations/Target for this Outcome | Findings/Results |
|---|--|---|---|
| <p>Outcome has action plan</p> <p>1.1</p> <p>Licensure Ready</p> <p>Graduates have the knowledge and skills to become a Geologist in Training (GIT) immediately upon graduation and are able to become licensed Professional Geologists (PG) after completing the experience requirements.</p> <p>ACTION PLAN</p> <p>DUE</p> <p>no due date set</p> | <p>1.1.1</p> <p>Knowledge of General and Field Geology</p> <p>ASBOG Domain Area 1: General and Field Geology</p> | <p>1.1.1.1 Not Met</p> <p>Ratio Analysis for Domain of General and Field Geology</p> <p>Normalized Ratio of All Candidate Domain Scores to National Domain Scores is 0.0 or Above</p> | <p>Ratio was -0.205 indicating that our students did not perform well in this domain compared to national scores.</p> <p>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</p> <p>2020: Results were received late Summer 2019. Faculty will review details of ASBOG domain during Fall 2019 and implement changes Spring 2020.</p> <p>(OAIE NOTE 7.14.21: Add the results of the spring 2020 changes in the Improvements achieved area below)</p> |
| | <p>1.1.2</p> <p>Knowledge of Mineralogy, Petrology, and Geochemistry</p> <p>ASBOG Domain Area 2: Mineralogy, Petrology, and Geochemistry</p> | <p>1.1.2.1 Exceeded</p> <p>Ratio Analysis for Domain of Mineralogy, Petrology, and Geochemistry</p> <p>Normalized Ratio of All Candidate Domain Scores to National Domain Scores is 0.0 or Above</p> | <p>Ratio was 0.024 indicating that our students performed well in this domain compared to national scores.</p> <p>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</p> <p>We are pleased with this result. We will continue to look for ways to improve, but have seen no need for immediate recommendations for improvement in this domain.</p> |
| | <p>1.1.3</p> <p>Knowledge of Sedimentology, Stratigraphy, and Paleontology</p> | <p>1.1.3.1 Exceeded</p> <p>Ratio Analysis for Domain of Sedimentology, Stratigraphy, and Paleontology</p> | <p>Ratio was 0.101 indicating that our students performed well in this domain compared to national scores.</p> <p>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</p> |

| Program Learning Outcomes | | Expectations/Target for this Outcome | Findings/Results |
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| | ASBOG Domain Area 3: Sedimentology, Stratigraphy, and Paleontology | Normalized Ratio of All Candidate Domain Scores to National Domain Scores is 0.0 or Above | 2020: We are pleased with this result. We will continue to look for ways to improve, but have see no need for immediate recommendations for improvement in this domain. |
| | <p>1.1.4</p> <p>Knowledge of Geomorphology, Surficial Processes, and Quaternary Geology</p> <p>ASBOG Domain Area 4: Geomorphology</p> | <p>1.1.4.1 Not Met</p> <p>Ratio Analysis for Domain of Geomorphology, Surficial Processes, and Quaternary Geology</p> <p>Normalized Ratio of All Candidate Domain Scores to National Domain Scores is 0.0 or Above</p> | <p>Ratio was -0.123 indicating that our students did not perform well in this domain compared to national scores.</p> <p>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</p> <p>2020: Results were received late summer 2019. Faculty will review details of the ASBOG domain during Fall 2019 and implement changes Spring 2020.</p> |
| | <p>1.1.5</p> <p>Knowledge of Structure, Tectonics, Seismology</p> <p>ASBOG Domain Area 5: Structure, Tectonics, Seismology</p> | <p>1.1.5.1 Not Met</p> <p>Ratio Analysis for Domain of Structure, Tectonics, and Seismology</p> <p>Normalized Ratio of All Candidate Domain Scores to National Domain Scores is 0.0 or Above</p> | <p>Ratio was -0.321 indicating that our students did not perform well in this domain compared to national scores.</p> <p>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</p> <p>2020: Results were received late summer 2019. Faculty will review details of the ASBOG domain during Fall 2019 and implement changes Spring 2020.</p> |
| | <p>1.1.6</p> <p>Knowledge of Hydrogeology</p> | <p>1.1.6.1 Not Met</p> <p>Ratio Analysis for Domain of Hydrogeology</p> | <p>Ratio was -0.244 indicating that our students did not perform well in this domain compared to national scores.</p> |

| Program Learning Outcomes | | Expectations/Target for this Outcome | Findings/Results |
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| | ASBOG Domain Area 6: Hydrogeology | Normalized Ratio of All Candidate Domain Scores to National Domain Scores is 0.0 or Above | <p>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</p> <p>2020: This course has not been taught in a few years. It will be taught again in Spring 2022. It is likely that the lack of this course impacted scores. No action is currently needed as we will wait to see if scores improve after the next offering.</p> |
| | <p>1.1.7</p> <p>Knowledge of Engineering Geology</p> <p>ASBOG Domain Area 7: Engineering Geology</p> | <p>1.1.7.1 Not Met</p> <p>Ratio Analysis for Domain of Engineering Geology</p> <p>Normalized Ratio of All Candidate Domain Scores to National Domain Scores is 0.0 or Above</p> | <p>Ratio was -0.160 indicating that our students did not perform well in this domain compared to national scores.</p> <p>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</p> <p>2020: We are currently not offering a course in this topic. Some of the topics covered in this portion of the exam are covered in other classes, but it is likely that the lack of offering this course is affecting the scores. Faculty will discuss the potential for including some engineering geology topics in other courses currently offered.</p> |
| | <p>1.1.8</p> <p>Knowledge of Economic Geology and Energy Resources</p> | <p>1.1.8.1 Not Met</p> <p>Ratio Analysis for Domain of Economic Geology and Energy Resources</p> <p>Normalized Ratio of All Candidate Domain Scores to National Domain Scores is 0.0 or Above</p> | <p>Ratio was -0.267 indicating that our students did not perform well in this domain compared to national scores.</p> <p>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</p> |


| Program Learning Outcomes | | Expectations/Target for this Outcome | Findings/Results |
|--|--|---|---|
| | ASBOG Domain Area 8: Economic Geology and Energy Resources | | 2020: Results were received late summer 2019. Faculty will review details of the ASBOG domain during Fall 2019 and implement changes Spring 2020. |
| <p>Outcome has action plan</p> <p>1.2</p> <p>Problem Solvers</p> <p>Graduates will possess concepts, techniques, skills, and tools to aid in solving geological problems using a combination of laboratory and field skills.</p> <p>ACTION PLAN DUE no due date set</p> | <p>1.2.1</p> <p>ANSAC Criterion 1: Problem Solving</p> <p>ANSAC Criterion 1: An ability to identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline.</p> | <p>1.2.1.1 Met</p> <p>Invert Paleo Aquifer Reef Project</p> <p>75% of students receive B or above on project</p> <hr/> <p>1.2.1.2 Not Met</p> <p>Structural Geology: Final Exam Question</p> <p>Students score 75% or better on the question.</p> | <p>Three out of seven students completed the project that resulted in a non-zero score. Those that completed it scored an 86.7%, 96.7%, and 100%.</p> <p>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</p> <p>2020: Students completing the exercise are doing well. Faculty member will ensure that in future offerings of the course, he will emphasize importance of the exercise so that more students complete it.</p> <hr/> <p>None of the seven students who attempted the question scored 75%.</p> <p>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</p> <p>2020: Student scores on this question (#7 of the Geol 3004: Structural Geology final exam) were 73%, 73%, 70%, 65%, 65%, 58% and 30%. Two of those students would have met the expectation with one additional point, with three students being very close as well. However, the main reason for a decrease in performance from the previous reporting year is most likely due to the pivot from in-class instruction to fully online instruction that</p> |

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| | | | <p>took place due to COVID-19. The majority of the material that is reflected in this question took place in the online environment, and the majority of these students struggled with learning the material in this way. While multiple attempts to convey the material were made, including online video lectures, individual and group virtual study sessions, and example problems, I noticed a significant decline in student performance on the exam with scores declining on questions that reflected learning that took place after the pivot. The overall course grades reflected this as well. (2020 reflection)</p> |
| | <p>1.2.2 ANSAC Criterion 3: Use scientific judgement to draw conclusion</p> <p>ANSAC 3: An ability to develop and conduct experiments or test hypotheses, analyze and interpret data, and use scientific judgement to draw conclusions.</p> | <p>1.2.2.1 Partially Met Geochemistry: Design and conduct water quality project</p> <p>75% of students achieve B or above</p> <p>1.2.2.2 Met Strat/Sed: Sediment Sorting, roundness, and maturity lab</p> | <p>The faculty member teaching this course left at the end of Spring 2019. The results they submitted are as follows: "I think the students got the general idea of the project from the reading the project assessment questions. I hoped the focus of the project</p> <p>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</p> <p>It is difficult to determine whether this outcome was met or not from this information. At this point (F19), we do not know if we will be able to hire a replacement for this position due to institutional budgetary issues, therefore this entire course is in jeopardy. For 2019-20, we will find an alternative measure.</p> <p>Six out of six students completed the multi-part lab, and every student earned a grade above 75%.</p> <p>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</p> |

| Program Learning Outcomes | | Expectations/Target for this Outcome | Findings/Results |
|---|---|---|--|
| | | 75% of students achieve B or above | <p>2020: Each of the students was successful in their ultimate goal of interpreting an unknown sediment sample's depositional characteristics. The steps involved determining sediment mineralogy, using appropriate equipment to sort the sample into different grain size categories and grain shapes, reporting the grain size data in appropriate charts, interpreting the charts and using appropriate statistical formulas to derive values and directing interpretation to an appropriate conclusion of the depositional environment. The students produced a formal write-up of the whole process.</p> <p>Over the course of this multi-part project students deal with qualitative and quantitative data as well as keys and charts in different units and scales, and the students must always be aware of what statistical tool they are using and what information can be gathered from the findings. In this way, students should have approached the mastered level for lab methods in geology while completing this project, and they should be prepared for any standard exam covering the interpretation of sedimentary/depositional characteristics.</p> |
| <p>1.3</p> <p>Intellectuals</p> <p>Graduates will possess a commitment to ethics, social and environmental responsibility,</p> | <p>1.3.1</p> <p>ANSAC Criterion 5a: Understand ethical and professional responsibilities</p> | <p>1.3.1.1</p> <p>Not Reported this Period</p> <p>Environmental Geology: NPDES Project</p> <p>75% of students score B or better</p> | <p>Project delayed, will begin at a later date.</p> <p>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</p> |

| Program Learning Outcomes | | Expectations/Target for this Outcome | Findings/Results |
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| communication skills, and engage in lifelong learning to meet the needs of a rapidly changing society and world. | ANSAC 5: An ability to understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts. | <p>1.3.1.2 Met</p> <p>Environmental Geology: AGI Ethics Modules</p> <p>75% of students will score 100%</p> | <p>All students taking ethics modules completed at 100%.</p> <p>REFLECTION ON FINDINGS AND RECOMMENDATIONS FOR NEXT STEPS</p> <p>2020: Students are doing well, no actions needed.</p> |

Project Attachments (1)

| Attachments | File Size |
|---|-----------|
|  NHS2020_BIOSCI_Geology.BS.pdf | 75KB |