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| **Depart: Natural Science** |  |
| **Course Title: Earth and Space Science** |  |

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| **Subject & Nbr: PHSC 102** | | |  | | |
| **# Units: 4** |  | | | | |
| **Time and Day/s: TBA** |  | | | | |
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| **Instructor(s): Mintesinot Jiru and Guest Professor** | | | |  | |
| **Office: STC Suite200** |  | | | | |
| **Office Hrs: MW11-12pm** |  | | | | |
| **Office Phone: 410-951-4139** | | | | |  |
| **Email: MJiru@coppin.edu** | |  | | | |

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| **Note: All official communications between students and the University must be via Coppin email addresses.** Communications received from students from non-Coppin email addresses will **not** be recognized. |

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| **Required and additional Texts:** |
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| **David McConnell and David Steer.** The Good Earth - Introduction to Earth Sciences 3rd Edition  **Lab Manual**  Handouts will be provided during each lab |
| **I. Course Description:** |
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| This course is designed to explore the dynamics in the earth and space by emphasizing on the basic concepts in Earth systems and planetary sciences. The course introduces students to Earth science through topical lectures and discussion of current events and research in Earth sciences. Topics include formation and composition of the Earth, plate tectonics, the rock cycle, the water cycle, climate change, the solar system, astronomy, the sun and galaxies. In the laboratory, students will be doing rock and minerals identification, water quality analysis and virtual labs on plate tectonics and the atmosphere, to mention few. |

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| **II. Course Objectives:**  **SLOs:** Written and Oral communication, Analytical reasoning and Responsive Citizenship  **Course goals:**   * Students will be able to understand the functions of the complex Earth System and the environment it provides for life. * Students will gain practical experience with day to day aspects of Earth System Science in terms of oral and written scientific presentations, proposal preparation, and reviews. * Students will be able to discuss contemporary topics in earth/space science such as plate tectonics, discovery of new planets, etc., published on various media. * Students will be able to generate and evaluate scientific evidence and participate productively in scientific discourse |
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| **III. Course Outline** | |
| **Chapter 1. Exploring Earth** | **Week 1** |
| Chapter 1. Studying Earth Science | Lab 1- The Scientific Method |
| * 1. Earth Systems Science   2. Doing Science   3. Science and Society |  |
| **Chapter 2. Earth in Space** | **Week 2** |
| 2.1 Origin of the Universe  2.2 Stars and Planets  2.3 Our solar system  2.4 The Unique features of Earth | Lab 2 - The Solar System |
| **Chapter 3. Near-Earth Objects** | **Week 3** |
| 3.1 Characteristics of Near-Earth Objects  3.2 Impact Features  3.3 Impact Hazard | Lab 3 – The Atmosphere |
| **Chapter 4. Plate Tectonics** | **Week 4** |
| 4.1 Science and Santa Claus  4.2 Continental Drift  4.3 Evidence from the seafloor  4.4 Plate Tectonics  4.5 Plate Boundaries | Lab 4 – Plate Tectonics |
| **Chapter 5. Earthquakes** | **Week 5** |
| 5.1 The Science of Earthquake  5.2 Faults, Earthquakes and Plate Tectonics  5.3 Seismic waves  5.4 Measurement of earthquake  5.5 Earthquake hazards | Lab 5- Earthquake |
| **Chapter 6. Volcanoes and Mountains** | **Week 6** |
| 6.1 Magma sources and composition  6.2 Volcanic eruption  6.3 Products of volcanic eruption  6.4 Landforms and Mountains | Lab 6 - Volcanic Eruption |
| **INTRODUCE FINAL PROJECT: Planets and Stars** | **WEEK 7** |
| **Chapter 7. Rocks and Minerals** |  |
| 7.1 The Basic building blocks  7.2 Major rock forming minerals  7.3 Major Rocks  7.4 The Rock cycle | Lab 7 – Rocks Identification |
| **Chapter 8. Weathering and Soils** | **Week 8** |
| 8.1 Physical weathering  8.2 Chemical weathering  8.3 Biological weathering  8.4 Weathering rates  8.5 Soils: an introduction  8.6 Erosion and Conservation | Lab 8 – Mineral Identification |
| **Chapter 9. Oceans and Coastlines** | **Week 9** |
| 9.1 Ocean basin  9.2 Ocean waters  9.3 Oceanic circulation  9.4 Tides  9.5 Shoreline features and protection | Lab 9 – Earth’s water |
| **Chapter 10. The Atmosphere** | **Week 10** |
| 10.1 Structure and Processes  10.2 Solar radiation  10.3 The role of water in the Atmosphere  10.4 Clouds  10.5 Winds | Lab 10 – Air circulation/Wind |
| Chapter 11. Earth’s Climate System |  |
| 11.1 Air Circulation  11.2 Global climate regions  11.3 Extreme climate environments  11.4 Records of Climate change  11.5 Natural Causes of climate change |  |
| Final Project Presentation | **Week 11 and 12** |
| **Final Exam**  **End-of-Chapter Test** | TBA  Will be announced at least a week before the test |

**IV. Grading system**

* 1. **Weighted Grade Categories**

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| Exams | 60% |
| Lab & Reports | 20% |
| Final Project | 15% |
| Final exam | 15% |

* 1. **The final grade will be determined based on the percentages received for weighted grades.**

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| Percentage | Final Grade |
| 90 and above | A |
| 80-89 | B |
| 70-79 | C |
| 60-69 | D |
| Below 60 | F |

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| **V. Lab portion of the Course:**  STC computer lab and Earth and Space Science lab will be used for the laboratory portion of the course. Weekly lab assignments will be given from the investigation manual. |

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| **Final project Module: Climate change module** |
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| **IV. Technology used in this Course:** |
| Blackboard, Tegrity and Computer lab |

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| **V. Modes of Instruction:** |
| Face to face |

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| **VI. Modes of Assessment:** |
| Tests, quizzes, presentations and final exam |

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| **VII. Writing Standards: Standards for a “C” Paper** |
| A. Content  The “C” paper fulfills the assignment, meeting all specified requirements, such as subject, organization, and length, and reflects the author’s awareness of audience and purpose. The paper presents a central idea supported by relevant material (facts, figures, examples, quotations, or other details). The reasoning is sound; arguments are supported with adequate evidence. Other points of view are acknowledged and responded to as appropriate. Sources of information are accurately presented and fully attributed.   1. Organization   The “C” paper has a discernible and logical plan. It has a focus, and the writer maintains the focus throughout the essay. The writer has unified the entire essay in support of the central idea, or thesis, and individual paragraphs in support of subordinate points. Some individual paragraphs, however, may be weak. The writer promotes coherence through the logical order of paragraphs and the use of some or of the following devices: thesis statement, topic sentences, opening and closing paragraphs, and transitions. The use of these devices may lack smoothness, but the writer has achieved an acceptable level of organization.  C. Style / Expression  The “C” paper uses reasonable stylistic options (tone, word choice, sentence patterns) for its audience and purpose. As a rule, the paper has smooth transitions between paragraphs, although some transitions may be missing or ineffective. The meaning of sentences is clear, although some sentences may be awkward or there may be a lack of variety in sentence patterns. Nonetheless, sentence structure is generally correct, although it may show limited mastery of such elements as subordination, emphasis, sentence variety and length, and modifiers. The paper reflects current academic practices of language use established by professional associations such as the Modern Language Association and the American Psychological Association.  D. Grammar / Mechanics  The “C” paper follows the conventions of standard written U.S. English; thus, it is substantially free of errors in grammar, spelling, punctuation, and mechanics. What errors are present must not impede meaning nor overly distract the reader. The paper reflects current citation and documentation of sources as specified in relevant guidebooks. |

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| **VIII. Plagiarism Policy:** |
| * It will be taken for granted that any work, oral or written, that a student does for any course is his/her original work. Any violation of this rule constitutes plagiarism. * Plagiarism includes any form of cheating on examinations, tests, quizzes and any unacknowledged and/or undocumented use of another’s writing or ideas published or unpublished, **including copying or rewording information found on the internet**. * A student who plagiarizes will receive a failing grade for the particular assignment. |

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| **IX. Bibliography:** |
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# Exploring Earth Science - 16 edition ISBN13: 978-0078096143 by Stephen Reynolds

# Earth Science / Edition 13 by Edward J. Tarbuck

# Principles of Environmental Science: Inquiry and Applications. [William Cunningham](http://www.valorebooks.com/author/William+Cunningham), [Mary Cunningham](http://www.valorebooks.com/author/Mary+Cunningham) ISBN13: 9780073532516

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| **X. Glossary:**  **XI. Accommodations Policy:**  Coppin State University supports all students in their academic endeavors. Should you need academic accommodations because of a disability please contact CSU’s Disability Support Services Program (DSSP) Counselor |

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APPENDIX

The following information is included to provide guidance on the criteria identified by the Middle States Accreditation Board for each of the competencies listed in section II.

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|  | Description of Institutional/Student Learning Outcomes   1. **Written and Oral Communication**  * Writing clear expository and persuasive prose * Use of valid research based arguments to support written or oral positions * Expression of ideas in language appropriate to the topic and audience * Writing and speaking proficiently for various audiences  1. **Analytical Reasoning**  * Thinking critically and analytically to respond to various issues and problems/concerns * Applying applications of classical and/or current theories and principles from specific content areas; * Using critical judgments from a combination of evidences and assumptions to reach viable conclusions * Collecting, analyzing, and interpreting data via computational literacy and scientific reasoning  1. **Information Literacy**  * Proficiency in the use of technology and its appropriate applicability * Use of multiple information sources such as online databases, videotapes, government documents, and journals in conducting research and/or in problem solving (e.g., electronic and print periodicals, chapters in books, government documents, archival material, and microfilm)  1. **Social and Self Awareness**  * Understanding of self and responsibilities as an engaged citizen and leader of service in the community * Awareness/understanding of economic, political, and organizational systems, and * Appreciation of diverse cultural heritages and global societies.  1. **Reflective Practice**  * Personal responsibility for intellectual growth through reflective practice in order to engage in continuous personal and academic development * Use of professional organizations to develop a comprehensive understanding of the expectations of the chosen profession; and * Development of professional competence through continuous learning experiences.  1. **Responsive Citizenship**  * Participation with broader communities * Understanding of society and commitment to political and civic engagement; * Understand and respect diversity of people, ideas, communities and cultures; and * Appreciation and awareness of environmental issues and initiatives. |