



# BATAAN PENINSULA STATE UNIVERSITY COLLEGE OF EDUCATION

Dinalupihan 2100 Bataan  
PHILIPPINES



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## Course Information:

Program	:	Bachelor of Secondary Education (Science)
Course Code	:	BSCI0923
Course Title	:	Environmental Science
Course Description	:	This 3-unit course deals with the general concepts and principles pertaining to the complex pattern of interaction between the physical environment and biological communities on earth. Emphasis is also given on the current environmental issues and concerns as well as disaster risk management techniques.
Course Credits	:	3 units, 3 hours lecture (for 18 weeks)
Pre-requisite	:	None
Co-Requisite	:	None
Schedule	:	TBA
Term & Academic Year	:	2 <sup>nd</sup> Semester, AY 2024-2025
University Vision	:	An inclusive and sustainable University recognized for its global academic excellence by 2030.

University Mission : To develop innovative leaders and empowered communities by delivering transformative instruction, research, extension, and production through Change Drivers and responsive policies.

Program Outcomes :

- PO-001 - Articulate and discuss the latest developments in the specific field of practice (PQF level 6 descriptor)
- PO-002 - Effectively communicate orally and in writing using both English and Filipino
- PO-003 - Work effectively and independently in multi-disciplinary and multicultural teams (PQF level 6 descriptor)
- PO-004 - Act in recognition of professional, social, and ethical responsibility
- PO-005 - Preserve and promote “Filipino historical and cultural heritage” (based on RA 7722)
- PO-006 - Participate in the generation of new knowledge or in research and development projects. (CMO 46, series of 2012)
- PO-007 - Acquire the competencies to support “national, regional and local development plans. (RA 7722)
- PO-008 - Articulate the rootedness of education in philosophical, socio-cultural, historical, psychological, and political contexts
- PO-009 - Demonstrate mastery of subject matter/discipline
- PO-010 - Facilitate learning using a wide range of teaching methodologies and delivery modes appropriate to specific learners and their environments
- PO-011 - Develop innovative curricula, instructional plans, teaching approaches, and resources for diverse learners
- PO-012 - Apply skills in the development and utilization of ICT to promote quality, relevant, and sustainable educational practices
- PO-013 - Demonstrate a variety of thinking skills in planning, monitoring, assessing, and reporting learning processes and outcomes
- PO-014 - Practice professional and ethical teaching standards sensitive to the local, national, and global realities
- PO-015 - Pursue lifelong learning for personal and professional growth through varied experiential and field-based opportunities
- PO-016 - Demonstrate deep understanding of scientific concepts and principles

- PO-017 - Apply scientific inquiry in teaching and learning
- PO-018 - Utilize effective science teaching and assessment methods

Course Outcomes		Program Outcomes																	
Upon completion of the course, the students should be able to:		PO-001	PO-002	PO-003	PO-004	PO-005	PO-006	PO-007	PO-008	PO-009	PO-010	PO-011	PO-012	PO-013	PO-014	PO-015	PO-016	PO-017	PO-018
CO-001	Comprehend the intricate relationships between the physical environment and biological communities, including the dynamics of ecosystems and biomes.	L								L							P	P	O
CO-002	Critically analyze current environmental issues such as climate change, pollution, and biodiversity loss, considering both natural and human-induced factors	L								L							P	P	O
CO-003	Apply disaster risk management techniques, including preparedness and sustainable practices, to mitigate environmental hazards and enhance resilience to natural disasters.	L								L							P	P	O

Correlating Course Outcome and Program Outcome

(Lecture/Theory-Based Courses)

- L Learned in the course
- P Practiced in the course
- O Not yet learned or practiced but there’s an opportunity to exist

(Health-Related/Shop/Laboratory Courses)

- I Introduce the skills in the course
- P Practice skills in the course with supervision
- D Demonstrate skills in the course without supervision

### Course Outline and Learning Plan:

Week	Course Outcome Code	Learning Outcomes			Topic (Content)	Textbook / References	Methodology (Teaching-Learning Activities)	Resources (Instructional Resources)	Assessment (Tools and Tasks)	Time Frame
		Knowledge	Skills	Attitude						
Week 1	--	Explain the importance of the University Mission and Vision, and apply the rules and behaviors required in the classroom		Behave according to the goals of the university.	<b>Overview of the University Mission and Vision, Course Syllabus, Classroom Policies, Academic Code of Conduct</b>	<ul style="list-style-type: none"> <li>• BPSU Student Handbook</li> <li>• Course Syllabus</li> </ul>	<ul style="list-style-type: none"> <li>• Brief Lecture</li> <li>• Small Group Discussion</li> <li>• Q and A</li> </ul>	<ul style="list-style-type: none"> <li>• Laptop</li> <li>• Smart TV</li> </ul>	<ul style="list-style-type: none"> <li>• Recitation</li> <li>• Q&amp;A Forum</li> </ul>	0.5 hours
Weeks 1-2		Identify and define at least three key environmental issues.	Analyze a case study on an environmental problem and propose possible solutions.	Participate actively in class discussions on environmental issues, contributing insights or questions.	<b>Introduction to Environmental Science</b> <ul style="list-style-type: none"> <li>• Overview of Environmental Science</li> <li>• Importance of Studying Environmental Science</li> <li>• Basic Concepts and Principles</li> </ul>	<ul style="list-style-type: none"> <li>• Principles of Environmental Science (Cunningham &amp; Cunningham)</li> </ul>	<ul style="list-style-type: none"> <li>• Brief Lecture</li> <li>• Small Group Discussion</li> <li>• Reflection Writing (with <b>Grammarly</b> integration)</li> </ul>	<ul style="list-style-type: none"> <li>• Laptop</li> <li>• Smart TV</li> </ul>	<ul style="list-style-type: none"> <li>• Chapter Test (checked using ZipGrade)</li> <li>• Oral Recitation</li> <li>• Reflection Paper</li> </ul>	5.5 hours
Week 3-4		Describe the components of an ecosystem and their interrelationships, completing a diagram illustrating	Conduct a field observation to assess biodiversity in a local ecosystem, documenting	Demonstrate respect for biodiversity by adhering to ethical guidelines during field observations,	<b>Interactions between Physical Environment and Biological Communities</b> <ul style="list-style-type: none"> <li>• Ecosystems and Their Components</li> <li>• Biodiversity and Its Significance</li> </ul>	<ul style="list-style-type: none"> <li>• Principles of Environmental Science (Cunningham &amp; Cunningham)</li> </ul>	<ul style="list-style-type: none"> <li>• Brief Lecture</li> <li>• Small Group Discussion</li> <li>• Reflection Writing (with</li> </ul>	<ul style="list-style-type: none"> <li>• Laptop</li> <li>• Smart TV</li> </ul>	<ul style="list-style-type: none"> <li>• Chapter Test (checked using ZipGrade)</li> <li>• Oral Recitation</li> </ul>	6 hours

		ecosystem components with at least 80% accuracy.	findings in a field journal with clear observations and data.	following established protocols and regulations without causing harm to the environment.	<ul style="list-style-type: none"> <li>Philippine Biodiversity Hotspots</li> </ul>		Grammarly integration)		<ul style="list-style-type: none"> <li>Reflection Paper</li> </ul>	
Weeks 5-6		<p>Explain the causes and consequences of climate change, citing specific examples and statistics.</p> <p>Identify sources and impacts of different types of pollution, providing detailed explanations for each.</p>	<p>Evaluate the environmental and societal impacts of deforestation through a well-structured report</p> <p>Propose strategies for mitigating environmental degradation, outlining actionable steps with measurable outcomes</p>	<p>Cultivate a sense of urgency in addressing environmental challenges, demonstrating a commitment to taking proactive steps towards sustainability</p> <p>Advocate for sustainable practices to minimize ecological footprint, actively promoting awareness and behavior change among peers and community members.</p>	<p><b>Environmental Issues and Concerns</b></p> <ul style="list-style-type: none"> <li>Climate Change and Its Impacts</li> <li>Pollution: Types, Sources, and Effects</li> <li>Deforestation and Habitat Destruction</li> </ul> <p><b>*Introduction to the Living Lab Project</b></p>	<ul style="list-style-type: none"> <li>Principles of Environmental Science (Cunningham &amp; Cunningham)</li> </ul>	<ul style="list-style-type: none"> <li>Brief Lecture</li> <li>Small Group Discussion</li> <li>Reflection Writing (with Grammarly integration)</li> <li>Community Scanning and Problem Identification</li> </ul>	<ul style="list-style-type: none"> <li>Laptop</li> <li>Smart TV</li> </ul>	<ul style="list-style-type: none"> <li>Chapter Test (checked using ZipGrade)</li> <li>Oral Recitation</li> <li>Reflection Paper</li> </ul>	6 hours
Weeks 7-8		Identify at least three unique flora and fauna	Engage in research projects	Develop a sense of pride in the rich biodiversity	Philippine Biodiversity	<ul style="list-style-type: none"> <li>Revisiting the state of Philippine</li> </ul>	<ul style="list-style-type: none"> <li>Brief Lecture</li> <li>Small Group Discussion</li> </ul>	<ul style="list-style-type: none"> <li>Laptop</li> <li>Smart TV</li> </ul>	<ul style="list-style-type: none"> <li>Chapter Test (checked</li> </ul>	6 hours

		<p>species native to the Philippines, describing their ecological significance.</p> <p>Discuss the primary threats to Philippine biodiversity</p>	<p>exploring biodiversity hotspots in the Philippines, presenting their findings in a scientific poster or oral presentation.</p>	<p>of the Philippines, recognizing the importance of preserving cultural and ecological heritage.</p> <p>Embrace the role of environmental stewardship in promoting sustainable development, advocating for policies and practices that safeguard biodiversity for future generations.</p>	<ul style="list-style-type: none"> <li>• Unique flora and fauna of the Philippines</li> <li>• Threats to Philippine biodiversity</li> <li>• Conservation efforts and initiatives</li> </ul>	<p>biodiversity and the legislation on access and benefit sharing  <a href="https://ap.fttc.org.tw/article/1836">https://ap.fttc.org.tw/article/1836</a></p> <ul style="list-style-type: none"> <li>• State of biodiversity documentation in the Philippines: Metadata gaps, taxonomic biases, and spatial biases in the DNA barcode data of animal and plant taxa in the context of species occurrence data  <a href="https://doi.org/10.7717/peerj.13146">https://doi.org/10.7717/peerj.13146</a></li> </ul>	<ul style="list-style-type: none"> <li>• Reflection Writing (with Grammarly integration)</li> </ul> <p><b>*Presentation of Living Lab Project Proposals</b></p>		<p>using ZipGrade)</p> <ul style="list-style-type: none"> <li>• Oral Recitation</li> <li>• Reflection Paper</li> </ul>	
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Week 9	MIDTERM EXAMINATION WEEK									3 hours
Weeks 10-11		<p>Explain the purpose and provisions of major environmental laws in the Philippines, citing specific examples and legal frameworks.</p> <p>Discuss the role of government agencies in enforcing environmental regulations, discussing key responsibilities and mechanisms for compliance.</p>	<p>Analyze case studies to evaluate the effectiveness of environmental policies, identifying strengths, weaknesses, and areas for improvement.</p> <p>Advocate for policy changes to address environmental injustices, drafting policy briefs or petitions to raise awareness and mobilize support.</p>	<p>Empower individuals to participate in environmental governance processes, advocating for transparency, inclusivity, and equity in decision-making.</p>	<p><b>Environmental Laws and Policies</b></p> <ul style="list-style-type: none"> <li>• Overview of Environmental Laws in the Philippines</li> <li>• Key environmental Legislations</li> <li>• Role of Government agencies in Environmental Protection</li> </ul>	<ul style="list-style-type: none"> <li>• Department of Environment and Natural Resources – Environmental Management Bureau (DENR-EMB)</li> <li>• <a href="https://ecac.emb.gov.ph/?page_id=43">https://ecac.emb.gov.ph/?page_id=43</a></li> </ul>	<ul style="list-style-type: none"> <li>• Brief Lecture</li> <li>• Small Group Discussion</li> <li>• Reflection Writing (with <b>Grammarly</b> integration)</li> <li>• <b>Implementation of Living Lab Projects</b></li> </ul>	<ul style="list-style-type: none"> <li>• Laptop</li> <li>• Smart TV</li> </ul>	<ul style="list-style-type: none"> <li>• Chapter Test (checked using ZipGrade)</li> <li>• Oral Recitation</li> <li>• Reflection Paper</li> </ul>	6 hours
Weeks 12-13		<p>Describe principles of sustainable development and resource management, applying theoretical concepts to real-</p>	<p>Analyze case studies to evaluate the effectiveness of designs on sustainable farming practices to enhance food security</p>	<p>Cultivate a mindset of long-term thinking and planning in resource management, recognizing the importance of balancing economic,</p>	<p><b>Sustainable Resource Management</b></p> <ul style="list-style-type: none"> <li>• Sustainable Development Principles</li> <li>• Sustainable Agriculture and Fisheries</li> <li>• Renewable Energy Sources</li> </ul>	<ul style="list-style-type: none"> <li>• Principles of Environmental Science (Cunningham &amp; Cunningham)</li> </ul>	<ul style="list-style-type: none"> <li>• Brief Lecture</li> <li>• Small Group Discussion</li> <li>• Reflection Writing (with <b>Grammarly</b> integration)</li> </ul>	<ul style="list-style-type: none"> <li>• Laptop</li> <li>• Smart TV</li> </ul>	<ul style="list-style-type: none"> <li>• Chapter Test (checked using ZipGrade)</li> <li>• Oral Recitation</li> <li>• Reflection Paper</li> </ul>	6 hours

		world scenarios.  Identify renewable energy sources and their potential applications, evaluating the feasibility and benefits of alternative energy technologies.	Evaluate national and local strategies for reducing resource consumption and waste generation.	social, and environmental considerations.			• <b>Implementation of Living Lab Projects</b>			
Weeks 14-15		Discuss the nature and impact of natural hazards in the Philippines  Identify strategies for disaster preparedness, response, and recovery, exploring best practices and lessons learned from past disasters.	Develop emergency response plans for different types of disasters.	Foster resilience and adaptive capacity in the face of environmental disasters, demonstrating courage, resourcefulness, and solidarity in times of crisis.  Promote community solidarity and collaboration in disaster risk reduction efforts.	<b>Disaster Risk Management</b>  • Natural Hazards in the Philippines • Disaster Preparedness and Response • Community-based Disaster Risk Reduction Strategies	• Philippine National disaster risk reduction and management plan 2020-2030.	• Brief Lecture • Small Group Discussion • Reflection Writing (with Grammarly integration) • <b>Implementation of Living Lab Projects</b> • <b>Preparation of Narrative Reports</b>	• Laptop • Smart TV	• Chapter Test (checked using ZipGrade) • Oral Recitation • Reflection Paper	6 hours



Weeks 16-17		Effectively communicate their environmental research findings through oral presentations, demonstrating comprehension and synthesis of course content.	Create professional-quality posters summarizing their environmental research, utilizing appropriate visuals, formatting, and organization.  Deliver engaging oral presentations of their research, using effective communication techniques such as clear articulation, eye contact, and engaging visuals.	Demonstrate confidence and enthusiasm while presenting their environmental research, showcasing their passion for environmental science and sustainability.	<b>Final Projects and Review</b> <ul style="list-style-type: none"> <li>• Oral and Poster Presentation of Environmental Research</li> <li>• Review of Course Content</li> <li>• Course Evaluation</li> </ul>	N/A	<ul style="list-style-type: none"> <li>• Finalization and sharing of outputs, incorporating <b>JAMOV</b> and <b>Grammarly</b></li> <li>• <b>Presentation of Completed Living Lab Projects</b></li> </ul>	<ul style="list-style-type: none"> <li>• Laptop</li> <li>• Smart TV</li> </ul>	<ul style="list-style-type: none"> <li>• Poster and Paper Presentation</li> </ul>	6 hours
Week 18	INTEGRATION AND FINAL EXAMINATION									3 hours

**Readings and References:**

- **Cunningham, W. P., & Cunningham, M. A. (2016).** *Principles of environmental science: Inquiry and applications*. Boston: McGraw-Hill.
- Miller, G. T. & Spoolman, S.E. (2016). *Environmental Science*. Boston, MA: Cengage Learning.
- Tayo, G., et al. (2004). *Fundamentals of Environmental Science*. Bulacan, Philippines: Trinitas Publishing
- Ani, P. (2020, July 16). Revisiting the state of Philippine biodiversity and the legislation on access and benefit sharing. FFTC Agricultural Policy Platform (FFTC-AP). <https://ap.fftc.org.tw/article/1836>
- Berba, C. M. P., & Matias, A. M. A. (2022). State of biodiversity documentation in the Philippines: Metadata gaps, taxonomic biases, and spatial biases in the DNA barcode data of animal and plant taxa in the context of species occurrence data. PeerJ, 10, e13146. <https://doi.org/10.7717/peerj.13146>
- [https://ecac.emb.gov.ph/?page\\_id=43](https://ecac.emb.gov.ph/?page_id=43)
- Philippines: National disaster risk reduction and management plan 2020-2030. (2024, January 3). PreventionWeb. <https://www.preventionweb.net/publication/philippines-national-disaster-risk-reduction-and-management-plan-2020-2030>

**Course Output (Performance Indicators)**

Course Outcomes		Course Major Output (Major Task Assessment Tool)	Due Date
Upon completion of the course, the students should be able to:			
CO-001	Comprehend the intricate relationships between the physical environment and biological communities, including the dynamics of ecosystems and biomes.	Reflective Essay	TBA
CO-002	Critically analyze current environmental issues such as climate change, pollution, and biodiversity loss, considering both natural and human-induced factors	Living Lab Project	TBA
CO-003	Apply disaster risk management techniques, including preparedness and sustainable practices, to mitigate environmental hazards and enhance resilience to natural disasters.	Reflective Essay	TBA
Final Requirement (Final Task Assessment)		Research Presentation	TBA

**Grading System**

Class Standing	Percentage
Quizzes	40%
Class Participation (Activity Sheets)	30%
Course Outputs	30%
<b>TOTAL</b>	<b>100%</b>


Midterm			Final		
Class Standing	-	70%	Class Standing	-	70%
Term Exam	-	30%	Term Exam	-	30%
Final Rating					
Midterm Grade (50%) + Final Grade (50%) = Final Rating					

**Course Policies and Standards:**

The following policies are to be observed and implemented inside the classroom by both the Professor and Students.

- Attendance and punctuality must be strictly observed.
- Maintain respect and discipline.
- Active participation in the discussion through sharing of ideas and experiences is encouraged.
- Observe tranquility so as to maintain an environment of focus learning.
- Always check the shared folder/s for relevant readings.
- Be prompt in submitting reports and other requirements.

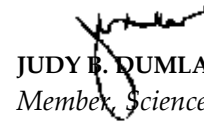
*Prepared and Submitted by:*

Faculty	:	 <b>RENDEL B. BATCHAR, MAEd</b>
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Contact Number	:	---
Consultation Hours	:	TBA

*Reviewed:*



**GLEND A D. ABAD, MBio**  
*Member, Science Cluster*



**JUDY B. D UMLAO, MBio, MASE**  
*Member, Science Cluster*

*Recommending Approval:*



**NOR AIDA G. BARDEMORILLA, MAEd**  
*Program Head*

*Approved:*



**GLEND A C. MAGNO, Ed.D.**  
*Dean of Instruction*

### SCORING RUBRIC FOR REFLECTIVE ESSAY

CRITERIA	EXCELLENT (4)	PROFICIENT (3)	BASIC (2)	BELOW BASIC (1)
CONTENT (20 pts)	The essay demonstrates a deep level of reflection, providing insightful analysis of personal experiences, emotions, and insights. It offers clear examples and evidence to support reflections, showing a strong understanding of the topic.	The essay shows evidence of reflection, providing analysis of personal experiences and insights. It offers some examples and evidence to support reflections, demonstrating a good understanding of the topic.	The essay demonstrates limited reflection, providing basic analysis of personal experiences and insights. It offers few examples or evidence to support reflections, showing a partial understanding of the topic.	The essay lacks reflection, providing minimal analysis of personal experiences and insights. It offers little to no examples or evidence to support reflections, demonstrating a weak understanding of the topic.
ORGANIZATION (10 pts)	The essay is well-organized, with a clear introduction, body paragraphs, and conclusion. Ideas flow logically, with smooth transitions between paragraphs. The structure enhances readability and comprehension.	The essay is organized, with an introduction, body paragraphs, and conclusion. Ideas are presented in a logical sequence, with mostly smooth transitions between paragraphs. The structure supports readability and comprehension.	The essay is somewhat organized, with an introduction, body paragraphs, and conclusion. Ideas are presented in a somewhat logical sequence, with occasional transitions between paragraphs. The structure may distract from readability and comprehension.	The essay is poorly organized, lacking clear introduction, body paragraphs, and conclusion. Ideas are presented in a disjointed sequence, with no transitions between paragraphs. The structure impedes readability and comprehension.
CLARITY AND DEPTH OF REFLECTION (10 pts)	The essay demonstrates a high level of clarity and depth of reflection, offering profound insights and thoughtful analysis of personal experiences. Reflections are articulate, coherent, and well-developed, engaging the reader throughout.	The essay shows clarity and depth of reflection, offering meaningful insights and analysis of personal experiences. Reflections are clear, coherent, and adequately developed, maintaining the reader's interest.	The essay demonstrates some clarity and depth of reflection, offering basic insights and analysis of personal experiences. Reflections are somewhat clear and coherent, but may lack depth or thorough development.	The essay lacks clarity and depth of reflection, offering minimal insights and analysis of personal experiences. Reflections are unclear, disjointed, or superficial, failing to engage the reader effectively.
LANGUAGE AND MECHANICS (10 pts)	The essay demonstrates exceptional language use and mechanics, with precise word choice, varied sentence structure, and flawless grammar, punctuation, and spelling.	The essay shows proficient language use and mechanics, with appropriate word choice, mostly varied sentence structure, and few errors in grammar, punctuation, and spelling.	The essay demonstrates basic language use and mechanics, with adequate word choice, somewhat varied sentence structure, and occasional errors in grammar, punctuation, and spelling.	The essay lacks proficiency in language use and mechanics, with limited word choice, repetitive sentence structure, and frequent errors in grammar, punctuation, and spelling.

### SCORING RUBRIC FOR DOCUMENTARY ANALYSIS

CRITERIA	EXCELLENT (4)	PROFICIENT (3)	BASIC (2)	BELOW BASIC (1)
THESIS AND ARGUMENT (20 pts)	The paper presents a clear and compelling thesis that effectively analyzes the documentaries' treatment of environmental issues in the Philippines. The argument is well-developed, supported by insightful analysis and evidence from the documentaries.	The paper presents a coherent thesis that analyzes the documentaries' treatment of environmental issues in the Philippines. The argument is adequately developed, supported by relevant analysis and evidence from the documentaries.	The paper presents a basic thesis that attempts to analyze the documentaries' treatment of environmental issues in the Philippines. The argument may lack depth or thorough development, with limited analysis and evidence from the documentaries.	The paper lacks a clear thesis or presents a weak thesis that fails to effectively analyze the documentaries' treatment of environmental issues in the Philippines. The argument is unclear or unsupported, with little to no analysis or evidence from the documentaries.
ANALYSIS AND INTERPRETATION (10 pts)	The paper demonstrates a sophisticated analysis and interpretation of the documentaries, offering insightful insights into their themes, messages, and impact on environmental discourse in the Philippines. The analysis is thorough, nuanced, and supported by detailed evidence from the documentaries.	The paper demonstrates a solid analysis and interpretation of the documentaries, providing a clear understanding of their themes, messages, and impact on environmental discourse in the Philippines. The analysis is well-supported by relevant evidence from the documentaries.	The paper demonstrates a basic analysis and interpretation of the documentaries, offering some understanding of their themes, messages, and impact on environmental discourse in the Philippines. The analysis may lack depth or detailed evidence from the documentaries.	The paper lacks effective use of evidence from the documentaries to support its analysis and arguments. It may provide minimal or irrelevant examples, quotes, or scenes from the documentaries.
USE OF EVIDENCE (10 pts)	The paper is well-organized, with a clear introduction, logical progression of ideas, and a strong conclusion that synthesizes key points. Paragraphs are well-developed, with smooth transitions between ideas and sections.	The paper is organized, with an introduction, body paragraphs, and a conclusion that follow a logical sequence. Ideas are presented coherently, with mostly smooth transitions between paragraphs and sections.	The paper is somewhat organized, with an introduction, body paragraphs, and a conclusion, though the sequence may be somewhat disjointed or unclear. Ideas may lack coherence, with occasional disruptions in flow.	The paper lacks organization, with a disjointed or unclear structure. Ideas are presented haphazardly, with little to no logical progression or coherence. Transitions between paragraphs and sections may be absent or ineffective.
ORGANIZATION AND STRUCTURE (10 pts)	The paper demonstrates exceptional writing style and mechanics, with clear, concise prose, precise vocabulary, varied sentence structure, and flawless grammar, punctuation, and spelling.	The paper shows proficient writing style and mechanics, with clear prose, appropriate vocabulary, mostly varied sentence structure, and few errors in grammar, punctuation, and spelling.	The paper demonstrates basic writing style and mechanics, with adequate prose, somewhat varied sentence structure, and occasional errors in grammar, punctuation, and spelling.	The paper lacks proficiency in writing style and mechanics, with unclear or awkward prose, repetitive sentence structure, and frequent errors in grammar, punctuation, and spelling.

### SCORING RUBRIC FOR RESEARCH POSTER

CRITERIA	EXCELLENT (4)	PROFICIENT (3)	BASIC (2)	BELOW BASIC (1)
CONTENT (20)	The poster effectively communicates the research topic, objectives, methodology, results, and conclusions. It provides clear and concise information, supported by relevant data, figures, and images. The content is comprehensive, insightful, and demonstrates a deep understanding of the research.	The poster communicates the research topic, objectives, methodology, results, and conclusions clearly. It presents relevant information with some supporting data, figures, and images. The content is mostly accurate and demonstrates a solid understanding of the research.	The poster includes basic information about the research topic, objectives, methodology, results, and conclusions. It may lack detail or depth in certain areas, and the supporting data, figures, and images may be limited or somewhat unclear. The content demonstrates a basic understanding of the research.	The poster fails to effectively communicate the research topic, objectives, methodology, results, and conclusions. It may lack clarity or coherence in presenting key details, and the supporting data, figures, and images may be missing or irrelevant. The content demonstrates a weak understanding of the research.
ORGANIZATION (10)	The poster is well-organized, with a clear layout and logical flow of information. Sections are clearly labeled and easy to follow, with appropriate headings and subheadings. The poster effectively guides the viewer through the research process from introduction to conclusion.	The poster follows a logical structure, with clearly defined sections and sub-sections. Information is organized coherently, with appropriate headings and subheadings to guide the viewer through the research process.	The poster has a basic structure, with sections and sub-sections that are somewhat clear but may lack coherence or consistency. The organization of information may be somewhat confusing or unclear at times.	The poster lacks organization, with sections and sub-sections that are unclear or poorly defined. Information is presented haphazardly, making it difficult for the viewer to follow the research process.
VISUAL APPEAL (15)	The poster is visually appealing, with a professional design and layout that captures the viewer's attention. It uses appropriate colors, fonts, and graphics to enhance readability and comprehension. Images and figures are clear, relevant, and effectively integrated into the design.	The poster is visually appealing, with a clean and organized layout that makes it easy to read and understand. It uses colors, fonts, and graphics effectively to highlight key information and draw the viewer's attention. Images and figures are mostly clear and relevant to the research.	The poster has some visual appeal, but the design and layout may be somewhat cluttered or distracting. Colors, fonts, and graphics are used inconsistently or ineffectively, making it harder to focus on key information. Some images and figures may be unclear or unrelated to the research.	The poster lacks visual appeal, with a design and layout that are unprofessional or confusing. Colors, fonts, and graphics are poorly chosen or applied, detracting from the overall presentation. Images and figures are unclear or irrelevant to the research.
CLARITY OF MESSAGE (15)	The poster effectively communicates the main message of the research, conveying key findings and conclusions clearly and concisely. The text is well-written, with appropriate language and terminology that is accessible to a general audience. The message is compelling and leaves a lasting impression on the viewer.	The poster communicates the main message of the research clearly, presenting key findings and conclusions in a straightforward manner. The text is mostly clear and concise, though some sections may be overly technical or difficult to understand. The message is generally engaging and informative for the viewer.	The poster communicates the main message of the research, but some key findings or conclusions may be unclear or poorly explained. The text may be too dense or verbose, making it harder for the viewer to grasp the significance of the research. The message is somewhat informative but lacks impact.	The poster fails to effectively communicate the main message of the research, with key findings and conclusions that are confusing or obscured. The text may be too convoluted or disjointed, making it difficult for the viewer to understand the research. The message is unclear and fails to engage the viewer effectively.

### SCORING RUBRIC for MINI ENVIRONMENTAL RESEARCH IMRAD

CRITERIA	EXCELLENT (4)	PROFICIENT (3)	BASIC (2)	BELOW BASIC (1)
INTRO (20)	The introduction clearly states the research problem, significance, and objectives. It provides a thorough review of relevant literature, demonstrating a deep understanding of the research context. The research questions or hypotheses are clearly articulated, and the rationale for the study is compelling.	The introduction effectively introduces the research problem, significance, and objectives. It provides a comprehensive review of relevant literature, demonstrating a solid understanding of the research context. The research questions or hypotheses are clearly stated, and the rationale for the study is mostly clear and convincing.	The introduction introduces the research problem, significance, and objectives, but may lack depth or thoroughness in reviewing relevant literature. The research questions or hypotheses are stated, but the rationale for the study may be somewhat unclear or underdeveloped.	The introduction fails to effectively introduce the research problem, significance, and objectives. It may lack a review of relevant literature or provide insufficient context for the study. The research questions or hypotheses are unclear or poorly articulated, and the rationale for the study is weak or absent.
METHODS (20)	The methods section provides a detailed description of the research design, sampling methods, data collection procedures, and analytical techniques. It is clear, well-organized, and sufficiently detailed to allow for replication of the study. Any limitations of the study are acknowledged and addressed appropriately.	The methods section provides a clear description of the research design, sampling methods, data collection procedures, and analytical techniques. It includes most necessary details for replication of the study, though some aspects may be less detailed or thorough. Limitations of the study are acknowledged, though may not be fully addressed.	The methods section provides a basic description of the research design, sampling methods, data collection procedures, and analytical techniques, but may lack some necessary details for replication of the study. Limitations of the study are mentioned, but may not be fully acknowledged or addressed.	The methods section lacks clarity or detail in describing the research design, sampling methods, data collection procedures, or analytical techniques. It may be difficult to understand or replicate the study based on the information provided. Limitations of the study are not adequately acknowledged or addressed.
RESULTS (20)	The results section presents findings clearly and concisely, using appropriate tables, figures, and statistical analyses to support key findings. It accurately summarizes data and highlights significant trends or patterns. Results are	The results section presents findings clearly, with appropriate tables, figures, and statistical analyses to support key findings. It summarizes data accurately, though some trends or patterns may be less clearly highlighted. Results are generally	The results section presents findings, but may lack clarity or coherence in summarizing data or highlighting trends. Tables, figures, or statistical analyses may be missing or incomplete. Results are discussed,	The results section fails to effectively present findings, with data that is unclear, incomplete, or inaccurately summarized. Tables, figures, or statistical analyses may be absent. Results are not adequately interpreted in



	interpreted in the context of the research questions or hypotheses.	interpreted in the context of the research questions or hypotheses.	but interpretations may be limited or unclear.	the context of the research questions or hypotheses.
DISCUSSION (20)	The discussion section provides a thorough interpretation of findings, relating them back to the research questions or hypotheses and addressing their implications in the context of existing literature. It critically evaluates the strengths and limitations of the study, offering insightful reflections and suggestions for future research.	The discussion section interprets findings in relation to the research questions or hypotheses, though some aspects may be less thoroughly addressed. It acknowledges strengths and limitations of the study, and offers some reflections on implications and future research directions.	The discussion section interprets findings, but may lack depth or thoroughness in relating them to the research questions or hypotheses. It acknowledges some strengths and limitations of the study, but reflections on implications and future research directions may be limited.	The discussion section fails to effectively interpret findings or relate them to the research questions or hypotheses. It may lack critical evaluation of the study's strengths and limitations, and reflections on implications and future research directions are absent or superficial.