

SCHOLARSHIP RESEARCH PAPER INSTRUCTIONS

Submit a research paper with a minimum of seven hundred (700) words on the topic **Leveraging Artificial Intelligence (AI) to Enhance Environmental Compliance at Water Resource Recovery Facilities (WRRFs)**.

Introduction:

Water Resource Recovery Facilities (WRRFs) aka wastewater treatment plants (WWTPs), need to follow strict rules and regulations to make sure the water they release into the environment (i.e., streams, rivers, lakes, and oceans) is safe. Sometimes, tools for monitoring and control of treatment processes, including instrumentation and associated data analytics, are not sufficient for facilities to remain in full compliance with all regulations. By using AI, Operators could better predict problems before they happen, avoiding upsets and helping facilities consistently adhere to environmental regulations.

Research Objectives:

- Understand how AI can help WRRFs predict and avoid upsets that could lead to non-compliance.
- Learn how AI can make process and effluent water quality monitoring faster and more accurate.
- Investigate any risks or challenges that come with using AI, such as relying too much on technology and automation, or privacy / cybersecurity concerns.

Expected Outcomes:

- A basic understanding of how AI can help wastewater treatment plants comply with environmental regulations.
- A simple demonstration of how AI predictions could work.
- A discussion of the pros and cons of using AI, including potential risks, such as what happens if the AI makes a mistake or draws conclusions from incorrect data.
- Summarize case studies showing where AI has been effectively applied to operation and control at WRRFs, or where pitfalls have occurred.

Submission Guidelines:

- Applicants are expected to do research on the above-mentioned topic and present their information in an organized format including an introduction, section titles and a conclusion.
- The research paper must be your own original work, thoughtfully written, and thoroughly researched.
- Any sources used during your research, including books, articles, or online content, must be properly cited in your paper. Sources must be cited in the very paragraph it is included.
- All references should also be listed on a separate page at the end of the paper, including the page number from which the information was obtained.
- All internet sources must include the complete, exact website address and the date it is retrieved.

Important Note:

To ensure fairness and originality:

- **AI Tools Prohibited:** The use of AI applications such as ChatGPT, Gemini, or similar tools to draft your essay is strictly prohibited.
- **Screening Measures:** All submissions shall be screened for plagiarism to verify content integrity and assessed for the use of AI-generated content.
- **Research Guidelines:** You are welcome to use the internet and other resources to research the topic. However, your essay must reflect your own thoughts and understanding, not content copied or generated by any external tool.

Deadline and Submission:

- NESOWEA Scholarship Application can be accessed from this URL on Ohiowea.org: <https://www.viethconsulting.com/members/form.php?orgcode=OWEA&fid=4648167>
- Completed scholarship application form along with the research paper (essay) should be submitted electronically by **Friday, April 4, 2025, 11:59 pm Eastern Time** which can be accessed from the URL listed above.
- Research paper (essay) should be submitted in a Microsoft Word compatible format, Times New Roman, 12-point font, and double spaced.
- An unrelated example paper is provided for clarification and suggested organization, citation and referencing.
https://www.ohiowea.org/docs/2021_Scholarship_Sample_Research_Paper.pdf

Consent to Publish:

- By submitting your research paper, you (the author) grant NESOWEA the consent to publish your work, in part or in full, in our newsletters, magazines, or other publications. This allows us to spread awareness about our outreach efforts and highlight the contributions of talented students like you.

Scholarship Awards:

Scholarship awardees and those receiving Honorable Mentions will be recognized at the NESOWEA Annual Business Meeting Lunch in May 2025. Any questions can be directed to Muralikrishna Chelupati at Muralikrishna.Chelupati@stantec.com.

**NORTHEAST SECTION
OHIO WATER ENVIRONMENT ASSOCIATION
SCHOLARSHIP INFORMATION**

The Northeast Section of the Ohio Water Environment Association (NESOWEA) may award scholarships each year to be used for college education or trade school expenses. The first-place scholarship is \$2,000 and Honorable Mention scholarships can be in amounts up to \$1,000. Both amounts may be increased each year based on the quality of the scholarship submission and the scholarship funds available at that time as authorized by the NESOWEA Executive Committee. High school seniors, current college students, and current Northeast Section OWEA members are eligible. The scholarship shall be used for the following academic year. Depending on available scholarship funds and the quality of the scholarship submissions, the Executive Committee may give multiple Honorable Mention scholarships.

The following criteria shall be used to evaluate the applications for scholarship:

1. A weighted grading system shall be used to evaluate applications. Applicants must submit a research paper according to the instructions discussed in pages 1 and 2. The research papers will be graded. Higher scores will get more points in the evaluation process.
2. If the applicant or the parent or legal guardian of the applicant is a member of the Northeast Section for the past three years and have a current membership status, more points will be awarded.
3. The applicant must be a high school senior or older.
4. An applicant may be pursuing any major. However, those studying in the environmental and wastewater field will receive more points for this item in the evaluation process.
5. The application asks for information regarding work experience, extracurricular activities, and goals. Applicants with strong involvement in community service and school activities and/or significant work experience will receive more points.
6. Once a student receives a 1st Place Scholarship, they are ineligible for any additional NESOWEA scholarships. Scholarship applicants receiving Honorable Mentions scholarships are encouraged to apply for subsequent year scholarships.

Interested students and/or members may download an application from the OHIOWEA.org website or obtain one by contacting an officer of the NESOWEA Executive Committee.

The current NESOWEA President shall choose a scholarship committee consisting of at least three members. This committee shall be responsible to review and evaluate the applications submitted for the scholarship for that year.

All applications must be completed and submitted to the current NESOWEA President by the date previously indicated. If there are no qualified applicants, the scholarships will not be awarded that year. The scholarship check will be presented to each winner upon proof of tuition receipt the following fall. If the scholarship winner fails to show proof of tuition receipt, the scholarship will be rescinded.