

Guidelines for EDIS authors when using AI Tools

We provide these guidelines at a point in time when AI Tools are evolving at a rate previously thought impossible. While the tools and their capabilities will change rapidly, the ethical considerations described here are applicable to any AI or AI-assisted tools used in developing content.

Using AI or AI-assisted tools to develop EDIS documents

AI or AI-assisted technologies cannot be authors or co-authors and must not be cited as authors.

Authors who use AI tools to assist with writing any part of the content in an EDIS document or generating images or graphics must be fully transparent about the use of AI in the publication.

Current AI tools are very good at some tasks that can be very helpful when developing EDIS documents, such as helping to word summaries or abstracts or explaining concepts for different comprehension levels. (e.g., “Explain evapotranspiration for a middle school audience, using the information in the following text [paste in [Evapotranspiration: Potential or Reference?](#)]”). If your content is primarily or significantly AI-generated, you must include a disclosure statement in the publication.

In general, if it would be plagiarism to use a similar contribution from any other source without citing it, you need to disclose the use of AI. With appropriate prompting, some AI-models can be effectively used to support a work that is essentially your own written content, serving as a kind of ghost writer, re-structuring, re-writing, or re-organizing the content for clarity or some other goal. If the extent of these changes would warrant disclosure if it were a human writer, you need to disclose the use of AI.

AI generated text can include incorrect and fantastical information that seems plausible in context. Authors of the EDIS publication bear the legal, ethical, and professional responsibility for making sure the information is correct.

It should go without saying that AI tools should not be used to infuse a publication with aspects that reflect human relationships and experiences that should form part of the author’s engagement with the reader, this might include:

- Anecdotes, personal stories, or personal voice of the author.
- Expressions of gratitude, apology, sympathy, support or other attempts at human connection.

Sample Disclosure Statement (from Elsevier)

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work the author(s) used [NAME TOOL / SERVICE] in order to [REASON]. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

Remember

- This statement is not needed for tools that check grammar, spelling, references, etc.
- These guidelines cover the use of AI in the writing process. For EDIS publications describing research that uses AI or AI-assisted tools in the research process, this use should be described as part of the research methods and does not require a disclosure statement (unless AI was also used in the writing process).
- [UF policies and guidelines for ChatGPT](#) and similar tools apply, understanding that putting data into ChatGPT or a similar service is equivalent to disclosing the data to the public.

Resources

[“Declaration of generative AI in scientific writing”](#) (Elsevier, accessed March 28, 2023)

[“How Should I Use A.I. Chatbots Like ChatGPT?”](#) (NYT On Tech: A.I. 3/30/2023, accessed March 30, 2023)

Citing sample text content generated by AI

Basic rule

Credit the tool you used in a similar way to personal communication. Include the tool, the text of the prompt, and the date. Where relevant, you may also include the publisher and/or a link to the tool itself. The unique URL assigned by ChatGPT requires the creator’s login credentials, so it cannot be used in a citation.

Much of this information can be communicated in the text of the document. Any of the required information that is not included in the text should be supplied in parentheses.

Examples

The following recipe for pizza dough was generated by an AI tool using the prompt “Explain how to make pizza dough from common household ingredients” (ChatGPT, March 7, 2023).

The following pizza dough recipe was generated by an AI tool. (ChatGPT, response to “Explain how to make pizza dough from common household ingredients,” March 7, 2023, OpenAI, <https://chat.openai.com/chat>.)

Remember

- If you have edited the AI-generated sample text, say so (e.g., “edited for style and content”)
- Do not cite AI tools in the reference list.
- Do not include the unique URLs ChatGPT provides you.

Resources

- [“How do you recommend citing content developed or generated by artificial intelligence, such as ChatGPT?”](#) (CMOS Q&A, accessed March 28, 2023)

Crediting images generated by AI

Basic Rule

Give credit to the source, as you would for any image. In the caption for the image or nearby text, include wording such as “This image was created with the assistance of DALL·E 2” or “This image was generated with the assistance of AI.”

In the Image Credit, include the prompt used to create the image in quotation marks, the name of the AI tool, and the date the image was generated.

Example

- “A modern office rendered as a cubist painting,” image generated by OpenAI’s DALL·E 2, March 5, 2023.

Remember

- You may remove the DALL·E signature/watermark in the bottom right corner

Resources

- [“How Should I Credit DALL·E in My Work?”](#) (OpenAI, accessed March 28, 2023)
- [“How do you cite images generated by DALL·E?”](#) (CMOS Q&A, accessed March 28, 2023)

Appendix A: Examples

These are some example ChatGPT queries and responses.

Query 1: AI-creates content (not recommended)

In order to use the result of this ChatGPT query (May 30, 2023) in a publication, a disclosure statement would be required because it is generated by ChatGPT and it would need careful fact checking of every detail.

Explain evapotranspiration at a middle school level

Sure! I'd be happy to explain evapotranspiration at a middle school level.

Evapotranspiration is a process that happens in nature, where water changes from a liquid to a gas and goes into the air. Let's break down the word "evapotranspiration" to understand it better. It consists of two parts: "evapo" and "transpiration."

"Evapo" comes from "evaporation." You might have heard of evaporation before. It's when water turns into vapor or steam and goes up into the air. For example, when you leave a glass of water outside on a hot day, you'll notice that the water level goes down over time. That's because the water is slowly evaporating and turning into invisible water vapor.

"Transpiration" is a process that happens in plants. Plants have tiny holes called stomata on their leaves that let out water vapor. Just like when we sweat, plants release water vapor through these holes. It's like the plants are sweating, but we can't see it because it happens on a very small scale.

So when we combine "evapo" (evaporation) and "transpiration," we get "evapotranspiration," which means the combined process of water evaporating from the Earth's surface, like lakes, rivers, and even the ground, and the water vapor being released by plants through transpiration.

Evapotranspiration is an essential part of the water cycle. It helps in regulating the Earth's temperature and distributing water around the planet. When water evaporates, it takes away heat energy from the Earth's surface, which helps to cool down the environment. The water vapor then rises into the atmosphere and forms clouds. Eventually, these clouds release the water back to the Earth as rain or snow, completing the water cycle.

Evapotranspiration also plays a crucial role in plants' lives. It helps plants get the water they need to survive and grow. When plants lose water through transpiration, they draw up more water from the soil through their roots, just like how we drink water to stay hydrated. This process helps transport nutrients from the soil to different parts of the plant.

Scientists study evapotranspiration to understand how water moves through the environment and to manage water resources effectively. It helps them determine how much water is needed for crops, forests, and other ecosystems.

So, in summary, evapotranspiration is the process of water evaporating from the Earth's surface, such as lakes and the ground, and plants releasing water vapor through tiny holes on their

leaves. It's an important part of the water cycle and helps regulate the Earth's temperature and provide water to plants for their growth and survival.

The following ChatGPT queries work with text copied from *Evapotranspiration: Potential or Reference?*
<https://edis.ifas.ufl.edu/publication/AE256>

Query 2: AI-written text using an authoritative source

This content is generated by the AI so it requires a disclosure statement, and requires careful reading and fact-checking

Explain 'evapotranspiration' for a middle school audience using the information in the following text: [text]

ChatGPT

Evapotranspiration is a process that combines two important ways in which water moves from the Earth's surface to the atmosphere. The first way is called evaporation, which is when water changes from a liquid to a vapor and goes into the air. The second way is called transpiration, which is when plants take up water from the soil through their roots and release it into the air through tiny openings in their leaves called stomata.

Evapotranspiration is a crucial process that affects many things, such as designing irrigation systems, deciding when and how much to water crops, studying water flow in the environment, and managing water resources. When we talk about evapotranspiration, we often use two terms: potential evapotranspiration (ET_p) and reference evapotranspiration (ET_o).

Potential evapotranspiration (ET_p) refers to the amount of water that would be transpired by a hypothetical short green crop that completely covers the ground and has enough water in the soil. In other words, it's like imagining a perfect crop that doesn't lack water and shades the entire ground. However, the specific type of crop is not defined, which can cause confusion because different crops have different evapotranspiration rates. For example, a well-watered crop may evaporate more water than a short green grass.

Reference evapotranspiration (ET_o) is the rate of evapotranspiration from a hypothetical reference crop, which is usually a type of grass that is well-watered, actively growing, and shading the ground uniformly. The reference crop is chosen because it represents average evapotranspiration rates under optimal conditions. It helps eliminate the variations caused by different crops and allows for more consistent comparisons. The weather data used to estimate reference evapotranspiration needs to be collected from a well-irrigated grass area, as weather conditions can greatly affect evapotranspiration rates.

The concept of reference evapotranspiration has gained acceptance worldwide, and there are standardized methods to estimate it. It is recommended to use the grass-reference evapotranspiration concept for activities like irrigation scheduling, water management, and research. By using a standardized reference, it becomes easier to compare evapotranspiration rates across different locations and crops.

Understanding evapotranspiration is important because it helps farmers, researchers, and extension agents communicate effectively. It allows them to make informed decisions about irrigation and water management, ensuring that crops receive the right amount of water at the right time. It also helps in studying water resources and designing systems that efficiently use water while considering environmental factors.

In summary, evapotranspiration is the process of water moving from the soil and plants into the atmosphere as vapor through evaporation and transpiration. Potential evapotranspiration (ET_p) refers to the amount of water a perfect, hypothetical crop would transpire, while reference evapotranspiration (ET_o) represents the evapotranspiration rate of a well-watered grass that serves as a standard reference. Understanding these concepts helps us manage water resources and make informed decisions related to agriculture and the environment.

Query 3: AI-revised text

Revision of the text is a creative process which, if done by a person, would need to be credited. The content needs to be carefully checked to make sure errors are not introduced. It also requires a disclosure statement.

rewrite at an 8th grade reading level: [text]

ChatGPT

This article aims to explain two commonly used concepts in evapotranspiration (ET) at a basic level: potential evapotranspiration (ET_p) and reference evapotranspiration (ET_o). Understanding these terms can help farmers, extension agents, and researchers communicate more effectively. Evapotranspiration is a process that involves the combined loss of water through evaporation from soil and plant surfaces and transpiration through plant canopies. It is important for various fields like irrigation system design, hydrology, and water resources management.

When estimating evapotranspiration for a specific crop, it is necessary to calculate either potential (ET_p) or reference (ET_o) evapotranspiration. These values are then used in conjunction with crop coefficients (K_c) to determine the actual evapotranspiration (ET_a) of the crop. Potential evapotranspiration assumes constant crop conditions but doesn't specify a particular crop, which can lead to confusion. Reference evapotranspiration, on the other hand, uses a hypothetical reference crop (typically grass) with specific characteristics to provide a more consistent approach. It simplifies the selection of crop coefficients and facilitates comparisons between different locations.

The weather data collection site is well-defined in the reference evapotranspiration definition, and the climate data used for estimation should be collected in a well-irrigated and well-maintained grass area. This helps ensure accuracy in estimating reference evapotranspiration values. The concept of reference evapotranspiration is widely accepted and recommended for irrigation scheduling, water management, and research purposes. The Penman-Monteith equation is the recommended standard method for estimating reference evapotranspiration.

In conclusion, understanding potential and reference evapotranspiration is crucial for effective communication and decision-making in various agricultural and water management applications.

Query 4a: AI as writing assistant

No disclosure is required if the author utilizes the suggestions to make their own revisions.

Can you tell me what terms and phrases in that text I might need to change or adapt for an eighth-grade audience?

ChatGPT

Certainly! Here are some terms and phrases in the text that could be simplified or adapted for an eighth-grade audience:

1. Evapotranspiration (ET): Explain that it is the combined process of water evaporation from soil and plants and water transpiration through plants.
2. Potential evapotranspiration (ETp): Define it as the estimated amount of water that a specific crop could lose through evaporation and transpiration.
3. Reference evapotranspiration (ETo): Explain that it is the estimated amount of water that a hypothetical reference crop, like grass, could lose through evapotranspiration.
4. Soil and plant surfaces: Clarify that it means the ground and the leaves of plants.
5. Transpiration: Describe it as the process by which plants release water vapor through their leaves.
6. Irrigation system design: Simplify it as the process of planning and designing systems to provide water to crops.
7. Hydrologic and drainage studies: Explain that it involves studying water movement and drainage systems.
8. Water resources management: Describe it as the management of water for various purposes, such as agriculture and human consumption.
9. Crop coefficients (Kc): Simplify it as a factor used to calculate the water needs of specific crops.
10. Actual crop evapotranspiration (ETa): Explain that it is the real amount of water that a crop loses through evapotranspiration.
11. Hypothetical: Replace it with "imaginary" or "hypothetical" and explain that it means something that is made up for the purposes of study or comparison.
12. Grass reference crop: Clarify that it refers to using grass as a standard crop for comparison.
13. Well-irrigated: Describe it as an area of land that receives sufficient water for plants to grow well.
14. Vapor pressure deficit: Simplify it as the difference between the amount of moisture in the air and the maximum amount it can hold.
15. Equations and standardized procedures: Explain that specific formulas and methods are recommended for calculating evapotranspiration.
16. Irrigation scheduling: Describe it as the practice of determining when and how much water to provide to crops.
17. Water management: Simplify it as the efficient use and conservation of water resources.

18. Hydrologic studies: Explain that it involves studying the movement and distribution of water on Earth.
19. Drainage research: Describe it as the study of systems to remove excess water from the soil.
20. Food and Agriculture Organization (FAO): Mention that it is an organization that provides information and guidance on agriculture and food-related issues.

By adapting these terms and phrases, the article should be more accessible to an eighth-grade audience.

Are there any parts of the text that are redundant or could be trimmed out?

ChatGPT

Yes, there are a few parts of the text that could be trimmed or made more concise without losing the essential information. Here are some suggestions:

1. In the introduction, you can remove the sentence "Evapotranspiration is important for many disciplines, including irrigation system design, irrigation scheduling, hydrologic and drainage studies, and water resources management." The importance of evapotranspiration can be implied in the subsequent explanations.
2. In the paragraph about potential evapotranspiration (ETp), you can remove the sentence "Evapotranspiration is important for many disciplines" since it has already been mentioned.
3. In the paragraph about reference evapotranspiration (ETo), you can remove the sentence "In the literature, the terms 'reference evapotranspiration' and 'reference crop evapotranspiration' have been used interchangeably and they both represent the same evapotranspiration rate from a short, green grass surface." This information is not crucial for an eighth-grade understanding of the topic.
4. In the paragraph about weather data collection for reference evapotranspiration, you can remove the sentence "For example, in a hot, dry month, the average air temperature may be as much as 5 to 6 C (9 to 10.8 F) higher in a dryland (non-irrigated) than for a well-irrigated land." The focus can be on explaining the need for well-defined weather data collection without specific temperature differences.
5. In the paragraph about the grass reference crop, you can remove the sentence "This is mainly because of the two reasons: (FAO, 1998) the characteristics of the grass are better known and defined, (McMahon, 2013) the grass crop has more planting areas than alfalfa throughout the world, and the measured evapotranspiration rates of the grass are more readily available and accessible as compared to the measured alfalfa evapotranspiration rates." The point about grass being a better representation can be made without these specific details.

By trimming these sections, the article will become more concise and focused on the core information needed for an eighth-grade audience.

What are some crops similar to alfalfa for the purposes of demonstrating evapotranspiration that might be more common to Florida eighth graders?

ChatGPT

For the purpose of demonstrating evapotranspiration to eighth graders in Florida, it would be more effective to choose crops that are commonly grown or familiar in the region. Here are a few crops that are more prevalent in Florida and can be used as examples:

1. Citrus trees: Florida is well-known for its citrus industry, so using citrus trees such as oranges, grapefruits, or lemons could be relatable for eighth graders.
2. Strawberries: Florida is one of the top strawberry-producing states in the U.S., and strawberries are a popular crop in the region.
3. Tomatoes: Tomatoes are commonly grown in Florida, and they are a widely recognized and consumed crop.
4. Watermelons: Florida has a significant watermelon industry, and watermelons are a familiar crop to many Floridians.
5. Corn: While corn may not be as common in all parts of Florida, it is still cultivated in certain regions, and it is a staple crop in many other parts of the country.

Using these examples, you can effectively convey the concept of evapotranspiration by discussing how water is lost from the plants, emphasizing the importance of understanding water needs for agricultural purposes.

Query 4c. AI-generated derivative content

Remember that when you add related AI-generated content, that then needs to be declared.

The Florida standards have changed, here they are: [content from <https://www.ixl.com/standards/florida/math/grade-8>]

Please generate three problems, along with their solutions, about evapotranspiration of strawberries using concepts from the evaporation text we were discussing, and that align with the eighth grade Florida math standards that I provided. please also provide the standard each is aligned with.

ChatGPT

No problem! I can provide you with three problems about evapotranspiration of strawberries, along with their solutions and the corresponding eighth-grade Florida math standards they align with. Here you go:

Problem 1: The evapotranspiration rate of strawberries is 2.5 mm per day. If a strawberry plant requires an average of 20 liters of water to grow, how many days will it take for the plant to use up all the water due to evapotranspiration?

Solution: To find the number of days, we need to divide the total water required by the evapotranspiration rate. Total water required = 20 liters Evapotranspiration rate = 2.5 mm/day

First, convert the evapotranspiration rate to liters per day: 2.5 mm = 0.0025 liters (1 liter = 1000 cubic centimeters) Now, divide the total water required by the evapotranspiration rate: Number of days = 20 liters / 0.0025 liters/day Number of days = 8000 days

Standard aligned: MAFS.8.NS.1.1 - Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

Problem 2: A farmer wants to estimate the total amount of water lost due to evapotranspiration in a strawberry field. The field has an area of 150 square meters, and the evapotranspiration rate is 3.8 mm per day. What is the total amount of water lost in liters over the course of a week?

Solution: To find the total amount of water lost, we need to multiply the evapotranspiration rate by the area of the field and the number of days in a week. Area of the field = 150 square meters Evapotranspiration rate = 3.8 mm/day Number of days in a week = 7 days

First, convert the evapotranspiration rate to liters per day: 3.8 mm = 0.0038 liters (1 liter = 1000 cubic centimeters) Now, multiply the evapotranspiration rate by the area of the field and the number of days in a week: Total water lost = 0.0038 liters/day * 150 square meters * 7 days Total water lost = 4.83 liters

Standard aligned: MAFS.8.EE.3.7 - Solve linear equations in one variable.

Problem 3: The evapotranspiration rate of strawberries in a greenhouse is 4.2 mm per day. If the greenhouse measures 10 meters in length, 6 meters in width, and 3 meters in height, what is the total volume of water lost in cubic centimeters due to evapotranspiration in a month? (Assume 30 days in a month)

Solution: To find the total volume of water lost, we need to multiply the evapotranspiration rate by the volume of the greenhouse and the number of days in a month. Length of the greenhouse = 10 meters Width of the greenhouse = 6 meters Height of the greenhouse = 3 meters Evapotranspiration rate = 4.2 mm/day Number of days in a month = 30 days

First, convert the evapotranspiration rate to cubic centimeters per day: 4.2 mm = 4.2 cubic centimeters (1 cubic centimeter = 1 milliliter) Now, multiply the evapotranspiration rate by the volume of the greenhouse and the number of days in a month: Total volume of water lost = 4.2 cubic centimeters/day * 10 meters * 6 meters * 3 meters *

Can you write a funny poem about evapotranspiration based on this content?

ChatGPT

Of course! Here's a lighthearted poem about evapotranspiration:

In a field of strawberries, oh so sweet, Evapotranspiration takes a tasty treat. Water disappears into the air, Leaving the plants in a state of despair.

Oh, evapotranspiration, what a funny word, Stealing water like a sneaky bird. The sun shines bright, the temperature high, Strawberries in the field start to sigh.

They call it transpiration, a fancy term, Water from the roots, the plants confirm. Through tiny pores called stomata, The water escapes, much to their drama.

But don't you worry, little berries so red, For farmers keep an eye on the water they shed.
They know the rate, they calculate, To ensure your growth and a fruitful fate.

Evapotranspiration, a vital role you play, In the life of strawberries day by day. So let's
appreciate this natural dance, As water evaporates, giving plants a chance.

Remember, little strawberries, you're loved, From the heavens above, water is shoved. So
grow and thrive, delicious and juicy, Thanks to evapotranspiration, how truly groovy!

Maybe like half that length

ChatGPT

Sure! Here's a shorter, funny poem about evapotranspiration:

In strawberry fields, oh what a scene, Evapotranspiration, a mischievous dream. Water
disappears, it vanishes in the air, Leaving plants in the sun, with a despairing stare.

Evapotranspiration, a fancy word we say, Water evaporates, then floats away. Plants lose
their H₂O through tiny pores, Leaving them thirsty, longing for downpours.

But fret not, dear berries, farmers understand, They measure the loss, with calculations
so grand. They ensure you're hydrated, your thirst they quench, So you can grow plump,
delicious and drench.

Evapotranspiration, a quirky endeavor, Bringing sunshine, water loss, and some clever. So
let's appreciate this dance in the heat, As strawberries thrive, oh what a sweet treat!

