

The Council of Science Editors (CSE)

As the name suggests, the CSE documentation system is most prevalent among disciplines of the natural sciences, although many of the applied fields in the sciences, like engineering and medicine, rely on their own documentation systems. As in the other systems described here, CSE requires writers to document all materials derived from sources. Unlike MLA or APA, however, CSE allows multiple methods for in-text citations, corresponding to alternative forms of the reference page that appears at the end of research reports. For more detailed information on CSE documentation, consult the latest edition of *Scientific Style and Format: The CSE Manual for Authors, Editors, and Publishers*. You can learn more about the Council of Science Editors at its website: www.councilscienceeditors.org.

WRITING PROJECT

Writing an Annotated Bibliography

The annotated bibliography is a common genre in several academic disciplines because it provides a way to compile and take notes on — that is, annotate — resources that are potentially useful in a research project. **Annotated bibliographies** are essentially lists of citations, formatted in a consistent documentation style, that include concise summaries of source material. Some annotated bibliographies include additional commentary about the sources — perhaps evaluations of their usefulness for the research project or comments about how the sources complement one another within the bibliography (possibly by providing multiple perspectives). Annotated bibliographies are usually organized alphabetically, but longer bibliographies can be organized topically or in sections with subheadings. Each source entry gives the citation first and then a paragraph or two of summary, as in this example using MLA style:

Carter, Michael. "Ways of Knowing, Doing, and Writing in the Disciplines." *College Composition and Communication*, vol. 58, no. 3, 2007, pp. 385–418.

In this article, Carter outlines a process for helping faculty across different academic disciplines to understand the conventions of writing in their disciplines by encouraging them to think of disciplines as "ways of doing." He provides examples from his own interactions with faculty members in several disciplines, and he draws on data collected from these interactions to describe four "metagenres" that reflect ways of doing that are shared across multiple disciplines: problem-solving, empirical inquiry, research from sources, and performance. Finally, he concludes that the metagenres revealed by examining shared ways of doing can help to identify "metadisciplines."

For this assignment, you should write an annotated bibliography that seeks to find sources that will help you respond to a specific research question. Your purpose in writing the annotated bibliography is threefold: (1) to organize and keep track of the sources you've found on your own topic, (2) to better understand the relationships among different sources that address your topic, and (3) to demonstrate knowledge of the existing research about it.

To meet this purpose, choose sources that will help answer your research question, and think about a specific audience who might be interested in the research you're presenting. Your annotated bibliography should include the following elements.

- An introduction that clearly states your research question and describes the scope of your annotated bibliography.
- As many as eight to twelve sources (depending on the scope of the sources and the number of perspectives you want to represent), organized alphabetically. If you choose a different organization (e.g., topical), explain how you have organized your annotated bibliography in the introduction.
- An annotation for each source that includes:
 - A summary of the source that gives a concise description of the main findings, focused on what is most important for responding to your research question
 - Relevant information about the authors or sponsors of the source to indicate credibility, bias, perspective, and the like
 - An indication of what this source brings to your annotated bibliography that is unique and/or how it connects to the other sources
 - A citation (see the Appendix) in a consistent documentation style

WRITING PROJECT

Developing a Supported Argument on a Controversial Issue

For this writing assignment, you will apply your knowledge from [Chapter 4](#) about developing an argument and from this chapter on finding and documenting appropriate sources. The sources you find will be evidence for the argument you develop. We ask you to make a claim about a controversial issue that is of importance to you and support that claim with evidence to persuade a particular audience of your position. As you write, you might follow the steps below to develop your argument.

- Begin by identifying an issue that you care about and likely have some experience with. We all write best about things that matter to us. For many students, choosing an issue that is specific to their experience or local context makes a narrower, more manageable topic to write about. For example, examining recycling options for students on your college campus would be more manageable than tackling the issue of global waste and recycling.

- Once you have identified an issue, start reading about it to discover what people are saying and what positions they are taking. Use the suggestions in this chapter to find scholarly sources about your issue so that you can “listen in on” the conversations already taking place about your issue. You might find that you want to narrow your topic further based on what you find.
- As you read, begin tracking the sources you find. These sources can serve as evidence later for multiple perspectives on the issue; they will be useful both in supporting your claim and in understanding counterarguments.
- Identify a clear claim you would like to support, an audience you would like to persuade, and a purpose for writing to that audience. Whom should you talk to about your issue, and what can they do about it?

As you work to develop your argument, consider the various elements of an argument you read about in [Chapter 4](#).

- Identify a clear central claim, and determine if it should have a simple or complex thesis statement.
- Develop clear reasons for that claim, drawn from your knowledge of the issue and the sources you have found.
- Choose evidence from your sources to support each reason that will be persuasive to your audience, and consider the potential appeals of ethos, logos, and pathos.
- Identify any assumptions that need to be explained to or supported for your audience.
- Develop responses to any counterarguments you should include in your argument.

Insider Example

Student Argument on a Controversial Issue



JACK GOMPERTS

The following sample student argument, produced in a first-year writing class, illustrates many of the principles discussed in [Chapters 4](#) and [5](#). As you read, identify the thesis, reasons, and sources used as support for the argument. Notice also that the student writer, Jack Gomperts, followed CSE style conventions throughout his paper, in response to his instructor’s direction to choose a documentation style appropriate to the subject of his argument.

Evaluating Hydration Levels in High School Athletes

Jack Gomperts

Professor Melton

English 101

Project 4

Evaluating Hydration Levels in High School Athletes

Every day, high school athletes across the country put themselves at risk of heat-related injury, and even death, by failing to hydrate properly. Many athletes arrive at practice dehydrated, and abandon proper hydration throughout activity. This habit not only puts athletes at an increased risk of injury, but also decreases their performance (Gibson-Moore 2014). Numerous researchers have explored exactly when and how much fluid an athlete needs to maintain proper hydration. Some experimenters focus on which fluids, such as water, sports drinks, milk, juice, or various other drink options, produce the best hydration. The most important factor in making sure athletes maintain hydration, however, is not telling them how to obtain hydration, but rather testing their hydration status. Often, athletes forget or ignore hydration when coaches simply tell them to stay well hydrated. If athletes know that they will undergo testing for hydration every day, they will be more likely to take action to achieve the proper hydration status. Scientists possess dozens of methods for testing hydration in athletes, and urine specific gravity and body mass measurements are the most practical for everyday use. Urine specific gravity requires only one drop of urine from an athlete, and body mass measurements require athletes to step on a scale. In addition, athletes must sign a contract with their school before participating in any athletic event associated with the school. Schools use these contracts to ensure that they are not liable for any injury experienced by an athlete. However, most schools do not include any information about hydration in their contracts, thus exposing athletes to severe risk. Altogether, schools should alter their athletic contracts to include hydration testing for athletes with urine specific gravity and body mass measurements.

Argument begins by establishing a problem that exists

Establishes the need for further exploration and action with regard to hydration in athletes

Does this author identify or imply a particular audience for this argument? If so, who do you believe that audience might be?

Establishes a two-part central claim or position of the argument: schools should alter contracts to include hydration testing and they should use urine specific gravity and body mass measurements as the means to test hydration.

Consider the kinds of evidence the writer relies on in this paragraph, including evidence from personal experience. Are they effective? What function does this paragraph serve in the overall structure of the student's argument?

How does this paragraph support part of the writer's central position about testing athletes' levels of hydration? What reason is supported here?

Every year, 10,000 high school athletes in the United States suffer from dehydration (Center for Disease Control and Prevention 2010). This staggering number only includes injuries that health professionals have diagnosed and does not account for the numerous athletes who suffer from dehydration without realizing it. Personally, I have never witnessed an athlete who was diagnosed with a heat-related illness, but I have seen several athletes suffer injuries that trace back to dehydration. I played on several sports teams throughout my high school career and witnessed a common theme; coaches often tell athletes to stay hydrated, but fail to explain the importance of hydration. At many football games, several of my teammates suffered from cramps caused by dehydration. During my senior year of high school, an athlete collapsed at three of my cross-country meets because of over-heating.

The athletes who neglected proper hydration at my school did not do so without consequences. Many of them experienced concussions; at least ten to twelve athletes from various sports at my school received concussions every year. According to Dr. Meehan, "Every time you get [a concussion], there's some effect on the brain that doesn't go away, concussions have a cumulative effect" (Costa 2015). Concussions negatively impact student-athletes for their entire lives, whereas most sports-related injuries do not have detrimental long-term effects. Scientists believe a strong correlation exists between hydration statuses and concussion risks. They have begun to study cerebrospinal fluid, which surrounds the brain and reduces the impact of heavy blows. With less fluid, athletes have a smaller cushion for their brain; scientists believe even a two percent decrease in hydration severely decreases the amount of cerebrospinal fluid (DripDrop 2016).

In addition to concussions, dehydration can also lead to a variety of heat-related illnesses, such as heat cramps, heat exhaustion, heat stroke, or even death. Heat cramps cause involuntary muscle contractions and can be treated by stretching and rehydration. Heat exhaustion causes redness of skin, profuse sweating, nausea, and vomiting, and is treated as a medical emergency by immediate rehydration and applying ice to the core. Heat stroke is the complete inability to thermoregulate and causes clammy skin, cease of sweating, dizziness, nausea, and possible unconsciousness. In order to treat a person experiencing these symptoms, medical professionals immediately cool them in an ice bath or transport them to a trauma center (Gallucci 2014). Despite the consequences, many athletes and coaches overlook the problem of dehydration. According to the National Center for Catastrophic Sports Injury Research (2009), 40 high school football players have died from heat stroke since 1995. In addition, they report that dozens of athletes are hospitalized every year for heat-related illnesses, which directly correlates to hydration status. When as many as two thirds of young athletes arrive at practice dehydrated (Southwest Athletic Trainers' Association 2013), it is evident that high school athletic policies must be improved.

Once schools recognize the problem of dehydration, there are many possible solutions. Of the various methods, a combination of urine specific gravity and body mass measurements would be the most convenient and effective for daily use. Since urine specific gravity is easy to use and accurate, schools should utilize its capabilities. This system analyzes a drop of urine on the stage of a refractometer to evaluate the level of hydration in the athlete. If the device shows a value between 1.001 and 1.012, the athlete is likely over-hydrated. A value between 1.013 and 1.029 shows

This paragraph functions to support the writer's reasoning for his central position. What is the reason he presents to support his central claim or thesis?

How effectively does the writer incorporate evidence from statistics?

Provides reasoning to support this particular method of hydration testing

proper hydration, and values above 1.030 show dehydration (Armstrong 2005). The device needed to take these measurements can cost anywhere from \$60 to \$400 (Lopez 2006)—a small price for teams to pay to ensure the safety of their athletes. According to Armstrong (2005), urine specific gravity is the best method to test hydration in an everyday setting because of its reliability, accuracy, and ease of use. Scientists possess several additional methods for testing hydration. These methods, however, are not practical for athletes on a daily basis, although they produce a higher level of accuracy than urine specific gravity. For instance, urine specific gravity loses accuracy as athletes' muscle mass increases. Hamouti et al. (2010) found that urine specific gravity devices falsely classify athletes with high muscle mass as dehydrated far more often than athletes with low muscle mass.

Writer provides further reasoning to support the methods of testing hydration levels in athletes

Due to the slightly inaccurate measurements produced by urine specific gravity, coaches should use body mass measurements in addition to urine specific gravity to test hydration. Body mass measurements are even more efficient and less expensive to record than urine specific gravity measurements. In order for coaches to use body mass measurements to determine hydration, they must simply weigh their athletes before and after every practice. If the athletes' mass decreases by more than two percent, they are dehydrated (Armstrong 2005). In addition, if their body mass decreases by more than two percent from the beginning of practice one day to the beginning of practice the next day, they are likely dehydrated. Body mass measurements provide a good estimate of hydration status. Recognizing that the body mass of high school athletes constantly changes due to growth, eating habits, and several other factors, coaches should use body mass measurements in addition to urine specific gravity. They should use urine specific gravity once

Writer ties together issues related to measuring hydration levels in order to support his contention that certain steps are necessary

on the athletes at the beginning of the season, and two to three times randomly throughout the season. This system will provide the coaches with more accurate results than body mass measurements, while not requiring athletes to place a drop of urine on a device every day. This process will ensure the safety of athletes on a daily basis and drastically decrease their risk for illness or death.

Despite the many benefits of hydration testing, some people might disagree with this proposal. Some might argue that regulating hydration status invades the privacy of an athlete and assumes unnecessary control of an athlete's life. I propose that students should decide how much fluid they need, how often they need it, and which drinks best produce hydration. Lopez (2006), Maughan (2010), and Johannsen (2015) all argue for different amounts and types of fluid for proper hydration. These decisions should be left to the athlete since each athlete differs in how much fluid they need for hydration. The schools should only take responsibility for making sure that their athletes are well hydrated. Schools and athletic organizations have put dozens of rules in place to ensure the safety of athletes, like the types of hits allowed in football. If schools have the authority to make rules that protect football players, schools have the power to implement rules and regulations that concern hydration. If implementing hydration regulations can save just one life, schools should do so as quickly as possible. A life is worth more than the few hundred dollars spent on urine specific gravity devices and portable scales. A life is worth more than the slight hassle of taking a few minutes before and after practice to measure athletes' body mass. These rules, however, could have potentially saved the 40 lives that have been lost since 1995 because of heat-related illnesses (National Center for Catastrophic Sports Injury Research 2009). Hydration

The writer acknowledges a potential counterargument. How does he use sources and evidence to refute the counterargument?

testing might have prevented several thousand athletes from experiencing heat-related illness every year, or saved dozens of athletes from hospitalization. The slight intrusion on athletes' privacy is well worth saving dozens of lives.

In addition to the intrusion on athletes, some people might argue that coaches already carry immense responsibility, and adding these tests would place a heavier burden on the coaches. However, the coaches' job is to teach the athletes how to improve their play and to keep them safe from injury. The hydration requirements I propose align directly with a coach's responsibility. Although it could be considered a burden to require coaches to measure athletes' hydration status, this burden takes no more than 20 minutes a day to complete. Additionally, these regulations exist in accordance with the coach's job, which is to protect his or her athletes, and enhance the athletes' performance however possible. These tests will help coaches do their job more fully and provide better care for their athletes.

Altogether, hydration should be tested in athletes with a combination of urine specific gravity and body mass measurements because these tests will ensure that athletes are practicing and performing under safe conditions. Dehydration poses a problem in high schools all across America because many teens do not understand the importance of proper hydration. Therefore, they arrive at practice dehydrated, which leads to thousands of injuries a year. I propose that to solve this problem, schools should include a policy in their athletic contract regarding hydration. This policy should require athletes to be subject to three to four urine specific gravity tests throughout the season and two daily body mass measurements. Even though people might argue that these tests intrude on athletes' privacy and place a burden on coaches, the tests are capable of saving

The author identifies another possible counterargument. What evidence is provided to refute the counterargument? Is that evidence convincing to you? Why or why not?

Can you identify other potential counterarguments that might undermine the writer's position here?

Do any of the writer's statements, presented in the conclusion to the argument, surprise you as a reader? Why or why not?

dozens of lives. I believe that this insignificant burden is well worth the sacrifice. I further propose that each athlete should be held responsible for determining how he or she can best achieve hydration. While researchers continue to find the best ways for athletes to maintain hydration, schools must take responsibility by implementing regulations to reduce the dangers associated with dehydration in athletics.

Are you convinced by this argument? Do you agree with the writer's position? Why or why not?

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Notice the mix of sources the writer relies upon, both popular and academic, as well as any primary and secondary forms of research.

Notice the kinds of sources the author uses as support. If he were to conduct additional research for support, what kind of additional sources would you recommend he look to in order to strengthen his argument?

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1. Whom do you think Jack Gomperts is targeting as his audience in this assignment? Why do you think that is his audience?
2. What is Jack's thesis, and what does he provide as the reasons and evidence for his claim?
3. What assumptions connect his thesis to his reasons? Additionally, what assumptions would his audience have to accept in order to find his evidence persuasive? Really dig into this question, because this area is often where arguments fall apart.
4. What counterarguments does Jack address in his argument? Why do you think he addresses these particular counterarguments? Can you think of others that he might have addressed?
5. What kinds of sources does Jack rely on in his argument? How does he integrate them into his argument, and why do you think he has made those choices?
6. What would make this argument more persuasive and effective?



Academic Research

- **Research typically begins with a research question, which establishes the purpose and scope of a project.** As you develop research questions, keep in mind the following evaluative criteria: personal investment, debatable subject, researchable issue, feasibility, and contribution.
- **A researcher who has established a clear focus for her research, or who has generated a claim, must decide on the kinds of sources needed to support the research focus:** primary, secondary, or both.
- **While both scholarly and popular sources may be appropriate sources of evidence in differing contexts, be sure to understand what distinguishes these types of sources** so that you can choose evidence types purposefully.
- **Primary sources are the results of data that researchers might collect on their own.** These results could include data from surveys, interviews, or questionnaires. **Secondary sources include research collected by and/or commented on by others.** These might include information taken from newspaper articles, magazines, scholarly journal articles, and scholarly books, to name a few.
- **Keep in mind that as you conduct research, you will likely have to refine your search terms.** This process involves carefully selecting or narrowing the terms you use to locate information via search engines or databases.
- **Be aware of the challenges of conducting basic searches for sources via Internet search engines** like Google. While Google Scholar may be a better means of searching for sources in the academic context, researchers often rely on more specialized research databases.
- **Peer-reviewed academic journals are an excellent source of information for academic arguments.** The publication process for journal articles is typically much faster than for books, so using journal articles allows you access to the most current research.
- **Be aware of the strategies you can use to integrate the ideas of others into your own writing:** summarizing, paraphrasing, and/or quoting.

- **When you integrate the words or ideas of others, take care to ensure that you are documenting their words and ideas carefully to avoid instances of plagiarism**, and make sure you understand what constitutes plagiarism at your institution and/or in your individual classes. Follow appropriate rules for documenting your sources and constructing a bibliography. In academic contexts, this often means using MLA, APA, or CSE documentation systems.

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