

## Writing About Operations Research – The Literature Review

### 1 The literature review section

- In operations research, the **literature** consists of:
  - journal articles,
  - conference proceedings,
  - government and corporate reports,
  - theses and dissertations,
  - books.
- The purpose of the **literature review** is to:
  1. summarize existing literature that is relevant to your project,
  2. describe how this literature relates to each other and your project.
- For your capstone project report, you will write an abbreviated literature review.
- Suggested outline:
  - Start the section by describing past relevant work in general terms, for example:

Many researchers have studied the use of optimization to construct schedules for courses, instructors, and students at colleges and universities that respect various constraints and objectives.
  - Tell your reader that you will describe only a few of these works and how they relate to your project:

Below, we describe some of these works and how they relate to our project.
  - Include a six-sentence abstract for each relevant work you found, with some modifications:
    - ◊ Modify the introduction sentence to include an in-text citation of the work, for example:

Phillips et al. (2014) study the problem of ...
    - ◊ Add a sentence describing how the work is similar to or different from your project and the other works you've included in your literature review.
    - ◊ Feel free to deviate slightly from the six-sentence structure to improve the readability of your writing.
- Guidelines for your literature review section:
  - Your literature review should include the six-sentence abstracts for at least three relevant works.
  - Do not use word-for-word quotations (direct quotes). This would be considered unusual in the operations research literature. Paraphrase instead.
  - Use the APA citation and reference style (see below).

## 2 APA citation and reference style

- There is no standard style for citations and references in the operations research literature.
- For this course, we will use the APA (American Psychological Association) style, which is similar to what many operations research journals use.
- Below, you'll find examples of common types of in-text citations and references.
- You can find a much more detailed guide on APA in-text citations and the reference list here: [https://owl.purdue.edu/owl/research\\_and\\_citation/apa\\_style/apa\\_overview\\_and\\_workshop.html](https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_overview_and_workshop.html)

### In-text citations

**Summary or paraphrase.** Include the author's last name and the date either in a signal phrase or in parentheses at the end.

Saltzman (2009) asserts that integer programming significantly reduces the amount of time spent constructing what is to be considered a good, feasible schedule.

The scheduling process often begins well in advance due to university planning requirements (Waterer 1995).

**A work with two authors.** Name both authors in the signal phrase or parentheses each time you cite the work. In the parentheses, use "&" between the authors' names; in the signal phrase, use "and."

For example, Chen and Zhang (2009) discussed how to modify their allocation of expected cost into an allocation of realized cost.

Another difficult, but common and beneficial set of constraints consistently implemented in more recent formulations is referred to as "room stability" (Lach & Lübbecke 2008).

**A work with three to five authors.** Identify all authors in the signal phrase or the parentheses the first time you cite the source.

In particular, Kranich, Perea, and Peters (2005) studied the strong sequential core of a dynamic cooperative game, which we adapt to the setting we study here.

In subsequent citations, use the first author's name followed by "et al." in either the signal phrase or the parentheses.

This set of constraints requires multi-period courses to be taught in consecutive periods and has been known to make the problem NP-hard (Daskalaki et al. 2004).

**A work with six or more authors.** Use only the first author's name followed by "et al." in all citations.

### Reference list

#### General guidelines.

- Put your reference list in a separate section titled "References."
- Your references should be listed in alphabetical order, based on the first author's last name.
- Italicize titles and subtitles of books. Capitalize only the first word of the title and subtitle, as well as all proper nouns.
- Capitalize only the first word of the title and subtitle of articles.

- For each entry in your reference list, indent every line after the first line. This is called **hanging indentation**.
- Only include references you cite in your report. Do not include other references, even if you have read them.

**Article in a journal paginated by volume.**

Bertsimas, D. & Brown, D. B. (2009). Constructing uncertainty sets for robust linear optimization. *Operations Research*, 57, 1483-1495.

**Article in a journal paginated by issue.**

Martin, C. H. (2004). Ohio University's College of Business uses integer programming to schedule classes. *Interfaces*, 34(6), 460-465.

**Conference proceedings.**

Edmonds, J. (1970). Submodular functions, matroids, and certain polyhedra. In R. Guy, H. Hanani, N. Sauer, & J. Schönheim (Eds.), *Combinatorial Structures and Their Applications (Calgary International Conference on Combinatorial Structures and Their Applications)* (pp. 442-454). New York, NY: Gordon and Breach.

**Government document.**

United States Naval Academy. (2016). *Academic Dean and Provost Notice 5420.1: Periodic Program Review/Visiting Committee Additional Information*. Annapolis, MD: Author.

**Report from a private organization.**

American Psychiatric Association. (2000). *Practice guidelines for the treatment of patients with eating disorders* (2nd ed.). Washington, DC: Author.

**Book.**

Grötschel, M., Lovász, L., & Schrijver, A. (1993). *Geometric algorithms and combinatorial optimization*. Berlin: Springer.

**References**

Purdue Online Writing Lab. (n.d.) *APA Style Workshop*. Purdue Online Writing Lab. [https://owl.purdue.edu/owl/research\\_and\\_citation/apa\\_style/apa\\_overview\\_and\\_workshop.html](https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_overview_and_workshop.html)

Hacker, D. (1995). *A writer's reference*. (3rd ed.). New York: St. Martin's.