

## Day 2: Openings

Reading *Writing Science* by Joshua Schimel

### Before workshop

#### 1. Summarize your manuscript

The PLOS *Ten Simple Rules* series is a collection of approachable and concise articles that address some of the soft skills in science. My manuscript outlines ten simple rules for finding and selecting R packages. R and, by extension, R packages, are widely used in academia and other research settings. R users of all levels struggle to (1) find a package to accomplish a particular task or solve a problem of interest and (2) choose the best package to perform that task. Thus, we introduce R, describe the importance and availability of R packages, and propose ten simple rules for finding relevant packages and determining which package is best for one's desired use. These rules increase R's accessibility to a diverse audience and promote computational reproducibility in science.

#### 2. Read Chapter 4 of *Writing Science*

#### 3. Identify key Introduction components in an example paper

##### Ten simple rules for Twitter

What is the larger problem that the paper will be tackling?

- How can researchers and scientists use Twitter to collaborate and advance their careers?

What is the relevant context for that problem?

- increased use of social media platforms in academia

What are the key characters?

- researchers and scientists

What background information is given to help the reader understand the specific work in the paper?

- background info about Twitter and its uses

What is the “challenge” (“the specific hypotheses/questions/goals of the current work”)?

- Twitter can be used strategically by scientists to advance their careers

##### Ecological fallacy

What is the larger problem that the paper will be tackling?

- ramifications of the ecological fallacy as applied to epidemiology

What is the relevant context for that problem?

- ecological studies evaluated in epidemiological contexts

What are the key characters?

- ecological studies
- empirical evidence

- conceptual meaning
- issues
- approaches
- researchers

What background information is given to help the reader understand the specific work in the paper?

- established consequences of the ecological fallacy

What is the “challenge” (“the specific hypotheses/questions/goals of the current work”)?

- demonstrating three flawed notions that come from typical uses of the ecological fallacy

## 4. Read Chapter 5 of *Writing Science*

## 5. Diagnose the Opening for an example paper.

### Ecological fallacy

Who do you think is the intended audience for the paper?

- epidemiologists
- ecologists

What is the larger issue the paper will address?

- ramifications of the ecological fallacy in epidemiological contexts
- an alternative approach to inference for understanding disease etiology

Do you think that they are properly “advertising” what they will later cover in the paper?

- high level overview
- three main points

## 6. Define Opening components for your paper

What is the target audience? Is it broad / interdisciplinary or targeted to researchers in a certain field?

- researchers in computational biology and bioinformatics (PLOS Computational Biology Journal)
- R users more broadly (e.g., academia, healthcare, government, industry, students, etc.)

What is the larger issue that the manuscript will address?

- provide an accessible, yet thorough, overview of the purpose of R packages
- simplify the process of finding and selecting R packages in a transferable way

What are a few elements of the issue that are interesting but that your manuscript will **not** address?

- R packages for specific tasks
- coding details
- technicalities of package development

## 7. Revise the Opening for your manuscript

see manuscript

**After workshop (see manuscript for revisions)**

## 8. Read Chapters 6 and 7 of *Writing Science*

Chapter 6 covers how to move from the Opening of your Introduction to the Challenge that you present before moving into other parts of your paper. Chapter 7 discusses how to end an Introduction with a “Challenge,” motivating everything you present in the rest of the manuscript.

## 9. Evaluate the Funnel and Challenge of example papers

Re-read the Introductions for the three example papers. Find and write down the text in each paper that presents the Challenge of the paper.

Next, re-read the Introduction of the Gall et al. paper. How does the Introduction funnel the readers from the Opening to the Challenge at the end of the Introduction? What background information does it give readers to help them understand and appreciate the Challenge? What examples do they use from the literature to convince readers that their Challenge is important?

## 10. Define the Challenge of your manuscript.

In 1–2 sentences, write the Challenge of your manuscript.

Look at the draft of your Introduction. Is this Challenge clear in the text? If so, is it at the end of the Introduction, or somewhere else?

Write down three pieces of background information that you think it is critical for your reader to know to believe that your manuscript’s Challenge is important. Draft a paragraph one each of these explaining and presenting the background information to readers.

Write down two examples that you think might help readers understand why your Challenge is important. Draft a few sentences presenting each of these examples.

Revise your Introduction to integrate your drafted material on the background and examples.

## 11. Read Chapters 8 and 9 of *Writing Science*