

# High-Impact Writing in Science: Course description

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Publishing a high-impact paper or being awarded a big research grant are career makers for a scientist. Writing high-impact science requires polish and politics. So your success will depend not just on your ability to write clearly and succinctly, but also your ability to identify and communicate with confidence the core messages of your research. In this workshop, we will learn effective scientific writing and then take what we learned to prepare an actual scientific manuscript. You will read and edit both published and unpublished scientific manuscripts, and you will prepare your own scientific manuscript.

## How this course is different from a writing course

**Course content.** This course focuses on writing for high-impact scientific journals and competitive funding agencies. It therefore covers all aspects of a high-impact manuscript or proposal, from ‘what makes a scientific project high-impact’, over how to write clearly and concisely, how to design clear figures with high information density and a clear message, to editing and the submission process. Course content is based on bibliographic studies on high-impact scientific publishing.

**Course instructor.** This course is taught by an active scientist who has published in and reviewed for high-impact journals (Nature, Science), worked as an assistant editor for a scientific journal, and has written and reviewed grant proposals for European and American agencies. Dr. Ulrike Müller has extensive experience editing scientific manuscripts for non-native speakers. She has worked as an international scientist at eight universities in four countries in Europe, America and Asia, and is currently a professor at California State University Fresno.

**Expectations of course participants.** Course participants are able to write in English without mechanical and gross lexical errors. The participants are planning or are in the process of writing a competitive scientific manuscript or grant proposal. Participants are expected to have scientific data ready to be used in the course (all participants will sign a confidentiality agreement). Participants will read, edit, and write scientific papers and manuscripts. The course is tailored for scientific investigators early in their academic career, it assumes a basic knowledge of scientific writing and natural science. The goal of the course is to produce the core elements of a scientific manuscript, including figures and a bibliography.

## Workshop format

The course will be structured like a workshop with short lectures punctuating group and individual tasks, such as preparing, editing and rewriting a draft, and group discussions. You will do some online fact finding and work through online material, both in and outside of class. Be prepared to talk about your research in class and to write a short scientific article concerning your research.

## Learning outcomes

By the end of this workshop, you should be able to

- break your scientific research down into its core arguments
- build a logical narrative from those core arguments
- identify and eliminate non-essential facts and concepts from a narrative
- restructure & formulate sentences to increase their clarity and enhance their functioning within a narrative
- effectively use and provide peer feedback to quickly develop a rough draft into a final manuscript
- write and edit a manuscript within a team

## Workshop materials

All necessary reading material will be provided as part of the workshop, unless announced otherwise. Participants need to bring a laptop, notepad and pen. Ideally, participants have a manuscript in an advanced stage of preparation that you will work on during this workshop. The course will require participants to access the internet during the course to participate in workshop activities. All course material will be available through Dropbox.

## General information

Target Group	The workshop is aimed at graduate research students and post-docs who have some experience in writing scientific papers and might have taken an introductory course on scientific writing. This workshop is most useful to researchers who plan to submit grant proposals or hope to publish their research in a high-impact journal. The course is useful for scientists across all disciplines.
Group Size	15-20 participants
Course duration	4 full days (9am to 5pm)
Language	English (Dutch possible if desired)
Self-study hours	1 hour per day
Name instructor	Dr. Ulrike Müller, Associate Professor, California State University Fresno
Venue	Participants receive a message about the course location before the start date

## Brief Course Schedule

Day 1		
09:00	Building writing teams – name your project	Activity 1
10:00	Basic writing rules	Lecture 1
10:15	First paragraphs of high-impact papers	Activity 2
10:45	Tea break	
11:00	First paragraphs, continued	Activity 2
12:00	High impact: most cited   downloaded   core paper	Lecture 2
12:30	Lunch	
13:30	High-impact papers – speed dating your reader	Activity 3
14:45	Tea break	
15:00	Structuring high-impact papers: Outlining	Lecture 3
15:15	Deconstructing a <i>Science</i> paper	Activity 4
16:00	The core of your paper - constructing your story	Activity 5
<b>Deliverables</b>	Main messages of manuscript	
<b>Day 1:</b>	1 <sup>st</sup> Draft of take-home messages	
<b>Bring for</b>	Data from your research	
<b>Day 2:</b>	Literature list for your manuscript or project	
Day 2		
09:00	High-impact data – visual presentation	Lecture 1
09:30	A picture tells 1000 words – Traffic accidents	Activity 1
10:45	Tea break	
11:00	Design rules for scientific figures	Lecture 2
11:50	Making figures for your paper	Activity 2
12:30	Lunch	
13:30	Your literature list makes a high impact	Lecture 3
13:45	Analyzing your reference list	Activity 3
14:00	Outlining your paper	Lecture 4
14:05	Making an outline for a published paper	Activity 4
14:45	Tea break	
15:00	Outlining your paper	Activity 5
16:00	Checking that you get your message across	Activity 6
<b>Deliverables</b>	Result figures for your manuscript	
<b>Day 2:</b>	Messages aligned with data	
<b>Bring for</b>	Your abstract (from conference or manuscript)	
<b>Day 3:</b>	Literature list for your manuscript or project	

**Day 3**

09:00	From outline to introduction	Lecture 1
09:10	Writing an introduction	Activity 1
10:45	Tea break	
11:00	Editing – some basic rules	Lecture 2
11:10	Editing & receiving feedback on your writing	Activity 2
12:00	Let's edit your introduction	Activity 3
12:30	Lunch	
13:30	How to write an abstract	Lecture 3
13:45	Writing an abstract	Activity 4
14:45	Tea break	
15:00	Writing as a non-native speaker	Lecture 4
15:20	Writing as a non-native speaker	Activity 5
16:00	Making a model introduction	Activity 6
16:30	Structuring your introduction	Activity 7
<b>Deliverables Day 3:</b>	Draft of your introduction Draft of your abstract	
<b>Bring for Day 4:</b>	Bring the most recent version of your abstract & manuscript	

**Day 4**

09:00	Writing a discussion	Lecture 1
09:10	Making a model discussion	Activity 1
09:50	Outline & write your discussion	Activity 2
10:45	Tea break	
11:00	What gets your paper rejected?	Lecture 2
11:40	Assemble your draft manuscript	Activity 3
12:30	Lunch	
13:30	What reviewers and editors want	Lecture 3
13:45	Peer review of draft manuscripts	Activity 4
14:45	Tea break	
15:00	Cooling your jets – receiving reviews	Activity 5
15:40	Cover letter & submission process	Lecture 4
16:00	Course evaluation & open discussion	Activity 6
17:00	The end	
<b>Deliverables Day 4:</b>	Draft of your discussion Peer review of your draft	