

Course framing and the publication landscape

Week 1 · 2105620 Research Communication Skills for Chemical Engineers

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TODAY

Three hours, five blocks

12 min	Why this course exists
15 min	Activity 1 — the 60-second research pitch
15 min	Debrief: communication as argument
18 min	The publication landscape
10 min	Break
35 min	Six genres of scientific publication
15 min	Activity 2 — Six Papers, Six Purposes
15 min	Debrief: genre determines structure
10 min	Break
25 min	How credit works · assessment · AI policy
10 min	Baseline survey · Zotero · Week 2

A research paper is not a report
of what you did.

**It is an argument that a claim
is warranted by evidence.**

Everything in the next thirteen weeks follows from this one sentence.

The work is not finished when the data are in



Unread

A result nobody can follow does not enter the record. It is, functionally, not a result.



Unfunded

Proposals, reports, and theses are all the same skill under different constraints.



Unhired

Your writing is the only part of your work most people will ever see.

Take it apart, then build one

PART I · WEEKS 1–6

Analysis

You reverse-engineer published papers. You write nothing of your own.
You learn to see structure.

PART II · WEEKS 7–14

Design

You build one manuscript of your own, section by section, in the same order you learned to take one apart.

The 60-second research pitch

Everyone speaks. Exactly sixty seconds.

The clock is on screen and I will cut you off.

This is your introduction — and it is also the first thing this course measures.

ACTIVITY 1

Four sentences. No more.

1

Who

I am ____, and I work on ____.

2

The problem

The difficulty in this area is that ____.

3

The attempt

What I am trying to do about it is ____.

4

Why it matters

If it works, ____ becomes possible.

You are not an audience. You are reviewers.

Pick any two classmates. For each of them, write down:

- Could you state their **gap** in one sentence?
- Could you state what they will **actually do**?
- Mark each: yes / no / almost

What just happened

- **Sentence 1 was easy**
- **Sentence 2 was hard**
- **Sentence 3 drifted**
- **Sentence 4 disappeared**

Everyone can say what they work on. Topic is not the same as contribution.

Most gap statements came out as “not much work has been done on X.” That is an absence, not a gap.

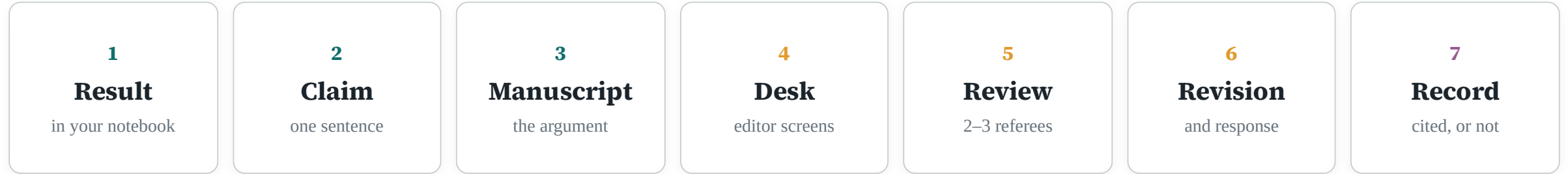
Several of you described methods instead of an aim. Method is how; aim is what you will settle.

The significance often vanished under the time limit — exactly as it vanishes under a word limit.

The publication landscape

Where your paper goes, who touches it,
and what each of them is deciding

Seven gates between your bench and a citation



Weeks 12 and 13 bring in editors who work gates 4 to 6 for a living.

You are never writing for one audience

~3 minutes

Editor

Is this in scope, and is it worth three referees' time?

~2 hours

Referee

Do the methods support the claim?

~40 seconds

Skimmer

Title, abstract, figures. Then leave or stay.

~a week

Builder

Can I reproduce this and build on it?



minute break

Back at the time on the board

Six genres

Same findings. Six different documents.
The difference is not style — it is purpose.

What each one is for



Research paper

A new claim, with the evidence that warrants it



Communication

A result too urgent to wait for the full study



Review

A map of what a field currently believes



Data paper

A dataset described so others can reuse it



Technical report

An account for a client or an institution



Thesis

A demonstration that you can do research

You can tell the genre without reading the science

Length	2 500 words says Communication. 14 000 says Review. Nothing else is close.
Reference count	Under 40 means original work. Over 150 is almost certainly a Review.
Section headings	IMRaD means an argument. Thematic headings mean a survey.
Methods section	Absent, or in supplementary material? Communication.
Figure-to-word ratio	High and rising · Communication. Low · Review or report.
Front matter	Executive summary means an institutional reader, not a referee.

The research paper

- **Makes ONE claim.**
- Everything else in the paper exists to warrant that claim.
- IMRaD is not a template — it is the shape of an argument: here is the question, here is how I answered it, here is what I found, here is what it means.
- The Methods section is a promise of reproducibility. It is what separates this genre from journalism.

TYPICAL SHAPE

Words	6 000 – 9 000
Figures	5 – 8
References	40 – 80
Review time	3 – 9 months
Headings	IMRaD

Two opposite answers to “how much?”



Communication

- Speed is the argument — you are claiming this cannot wait
- Methods usually pushed to supplementary
- One figure carries the whole claim
- Rejected hardest for lack of novelty



Review

- Synthesis is the argument — a new way to organise what is known
- A list of papers is not a review; it is a bibliography
- Thematic headings, not IMRaD
- Usually invited — check before you write one

The three you will also write

- **Data paper**

The dataset is the contribution. No hypothesis is required — but the description must be complete enough for someone else to reuse it without asking you a question.

- **Technical report**

Written for a client or an institution, not for referees. Executive summary first, because the reader may stop there. Not peer reviewed, and not part of the permanent record.

- **Thesis**

Its purpose is not to report findings but to demonstrate that you can do research. That is why it contains material a journal would cut — failed attempts, full derivations, the reasoning behind choices.

ACTIVITY 2 • 15 MINUTES • IN PAIRS

Six Papers, Six Purposes

Six dossiers. Titles, three lines of abstract, headings, counts.

The journal name has been removed.

Work out what each one is — from its shape alone.

ACTIVITY 2

What to do

1

7 min • in pairs

For each of the six dossiers, write down three things.

2

8 min • report out

We take them in order. Number 6 last.

For each dossier, record:

1. Which genre is it?
2. The two strongest structural clues
3. Who is the intended reader?

If you could tell the genre
without reading the science —

what were you actually reading?

Structure. Proportion. Where the argument sits.

That is the whole course in one line — and it is why Part I comes before Part II.



minute break

Then: how credit works, and how you are graded

How credit actually works

- **Authorship is earned, not granted**

Contribution to design, execution, or interpretation — plus drafting, plus approval, plus accountability. Supervising a project is not automatically one of them.

- **Order carries meaning — and it varies**

First author did the work; last author ran the group. In some fields. Never assume; ask before the first draft, not after.

- **Citation is the currency**

It is also the audit trail. An uncited idea that is not yours is misconduct, whatever the intention.

- **The record is permanent**

Retractions stay visible. So does everything you sign your name to.

Four components

30%

Midterm

Held after Week 6 — analysis of published work

30%

Final

Application: revise, and respond to a reviewer

20%

Assignments

Three of them: critical appraisal, Introduction and Methods, and a figure set

20%

Final project

A complete manuscript, which you also present

Every assignment carries an AI-use declaration. The policy permits more than you expect — and it requires you to say what you did.

Three things

1

Baseline survey

On myCourseVille. Ten minutes. It is not graded — it tells me where this cohort starts.

2

Install Zotero

Desktop client plus the browser connector, and create an account. Week 3 is a laboratory and assumes it is working.

3

Bring a paper

One published paper from your own area, printed. We take it apart in Week 4.

Not: what did I do?

**But: what do I claim,
and why should anyone believe it?**

See you next Thursday.

BEFORE YOU GO • 45 SECONDS

How was today?

Five questions. Anonymous — no name, no email, no login.

The fourth question is the one I actually use.

The two most common answers open next week's session.

oxidized-challenge-ed9.notion.site



Scan now — I will wait