

Making Time for it All:
Integrating Writing, Speaking, and Quantitative Reasoning in
Disciplinary Courses



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How do you integrate writing, speaking, quantitative reasoning in a class where . . .

- The curriculum is already packed.
- You have no release time for development of materials.
- You have few resources to help you implement your plans.
- Institutional requirements make innovation difficult.
- No support from your professional organization for innovative teaching.



Teaching with Writing & Numbers: Questions

What sorts of quantitative writing tasks do your students complete?

What would you like to have them doing?

What are the barriers to having your students do more of these?



Making changes can be big picture or local picture.

Big Picture: Changing . . .

- Professional Expectations
- Institutional requirements
- Major requirements

Local Picture: Changing . . .

- Entire course structure
- Individual assignments
- Pieces of individual assignments




The Big Picture



Does your profession recognize the importance of quantitative writing?

- Do accreditation standards mention writing (e.g., ABET)?
- Are there places for publishing about quantitative writing in your discipline?
- What is your profession's identity towards writing?
- Who teaches writing?

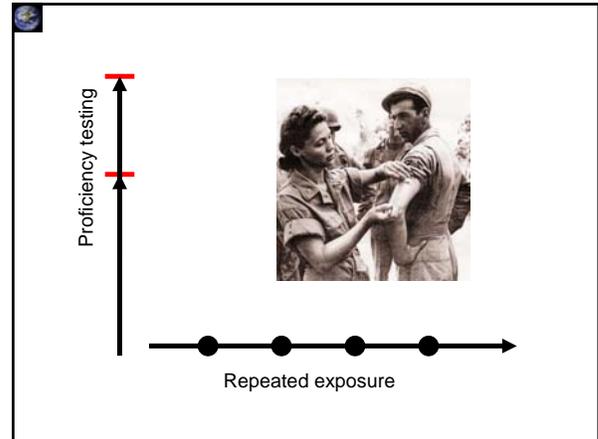


MIT's Communication Requirement integrates instruction and practice in writing and speaking into all four years and across all parts of MIT's undergraduate program.

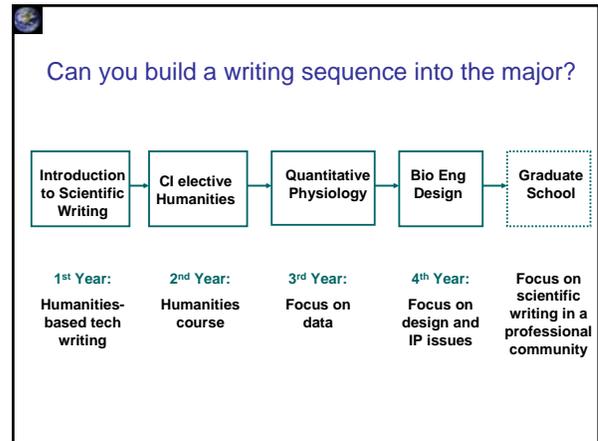


<http://web.mit.edu/wac/>

Undergraduates take two CI classes in the humanities, arts, or social sciences, and two CI classes in their majors, usually laboratory classes.



- **Background Assumptions**
- Mastery of communication skills is essential.
- No single subject can meet all of the goals of the Communication Requirement. Teaching of communication is shared by faculty across Schools, departments, and majors.
- Communication skills develop over time and requires active participation; no single subject can give students what they need to become competent communicators.
- Students improve as communicators by engaging in a process of planning, practicing, receiving feedback, and revising.
- Performance will vary with the student's aptitude, intellectual maturity and motivation, and the nature of the assignment.
- Communication, especially writing and speaking, enables us to formulate, clarify, and promote our ideas, and to have an impact on the world at large.
- Although it may be beyond the formal scope of this Requirement, we recognize that communication goes beyond writing and speaking. Effective communication is complex process and can include the ability to persuade, coordinate, negotiate, strategize, manage, lead, and even inspire.



- Do you revise an existing course or create a new course?
- As your professional goals change, so should your teaching.
 - Go back to your learning goals for the course.
 - Not every course you teach has to "a major production" in writing instruction. Small is good.

In redesigning a course, it's helpful to map high stakes and low stakes activities.

High Stakes

Low Stakes

Key

- Red circle = individual writing
- Blue parallelogram = mentoring session
- Green diamond = team briefing
- White triangle = formal review
- White circle = final report or proposal
- Blue triangle = dry run
- White circle with blue lines = rough draft

Courtesy of Jennifer Craig

Making a flow chart is helpful in considering revision cycles and timing.

Week 1

Week 2

Week 3

Week x?

Formative assessment is a good way to add quantitative writing to a single assignment.

- Muddy cards
- PRS—write about data
- Misconception checks
- Peer review: pairs, groups, rotisserie
- In-class drafting: 2 minute paper
- low stakes writing: "getting meta"

Are your barriers big picture or local picture issues?

Institutionally, where do those barriers "live"

What information do you need to overcome those barriers?

Some specific tips on writing feedback

- Teach students how to receive and give feedback.
- Contradictory feedback can be good.
- Do not edit student writing.
- 1 hr. commenting vs 15 min. conference?
- Electronic commenting
- Work with Writing Center.
- Enrich your language to describe writing.
- Beyond rubrics! try low stakes feedback: sayback, 3-questions, roll-your-own trait analysis

Lessons learned

- Look to the big picture. Where do you want your program to be in 5 years?
- Look internationally
- Emphasize faculty "buy in."
- Professionalize the view towards teaching quantitative writing.
- Look for allies in strange places.
- Iteration in change
- Keep instruction short and practice long.
- Start with smaller modules rather than larger ones.
- Individualize to fit course, department, institutional objectives.

Mayan word
la-ja (la) > tr. v. "to end, finish."

