Writing-Enriched Curricula: Changing Faculty Approaches to Writing Instruction

Writing Across the Curriculum: **WAC**

Writing in the Disciplines: **WID**

Writing-Enriched Curriculum: **WEC**

ELT: CUHK

May 27, 2019

Pamela Flash, University of Minnesota

flash@umn.edu / http://wec.umn.edu

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Growing up parents teach their kids "two wrongs do not equal a
lesson is taught to inform children that doing a wrong deed back to som
is not right. Native Americans today face criticism for the fact that the
have casinos on their reservations. Critics of the casinos believe that th
government is the one trying to make "two wrongs into a right." First ta
takes the land from the Native American people and now they want to
allowing casinos to be built on reservations. Some Americans are jealo
of some of the Native American casinos and this jealousness has led to
all of the controversy about casinos, one thing is certain that the Native
were unjustly treated during the early establishment of settlers. Having
North American continent before 1600, today Native Americans live o
spread out across the United States. These reservations do not amount
the land they had before the settlers came. The government of the Uni
continue to allow Native American reservations to provide casinos to th
they are beneficial to both parties as is evident by providing job opport
advantages, and rebuild the Native American culture.

Handwritten margin notes: commas — AWK — R.O. Scott — WORDCHOICE — SOURCE? — accuracy — WORDINESS — What do you mean here? — How? In what — ?

"I'm a scientist. I teach science; it's not my job to teach *writing*."

"These students should know how to write before they get to my class."

"Supporting effective writing sounds fine...but not in <u>my</u> class. I have way too many students!"

"I'm an **engineer.** I teach **engineering;** it's not my job to teach *writing*."

"These students should know how to write before they get to my class."

"Supporting effective writing sounds fine…but not in <u>my</u> class. I have way too many students!"

"I'm a **historian**. I teach **history**; it's not my job to teach *writing*."

"These students should know how to write before they get to my class."

"Supporting effective writing sounds fine…but not in <u>my</u> class. I have way too many students!"
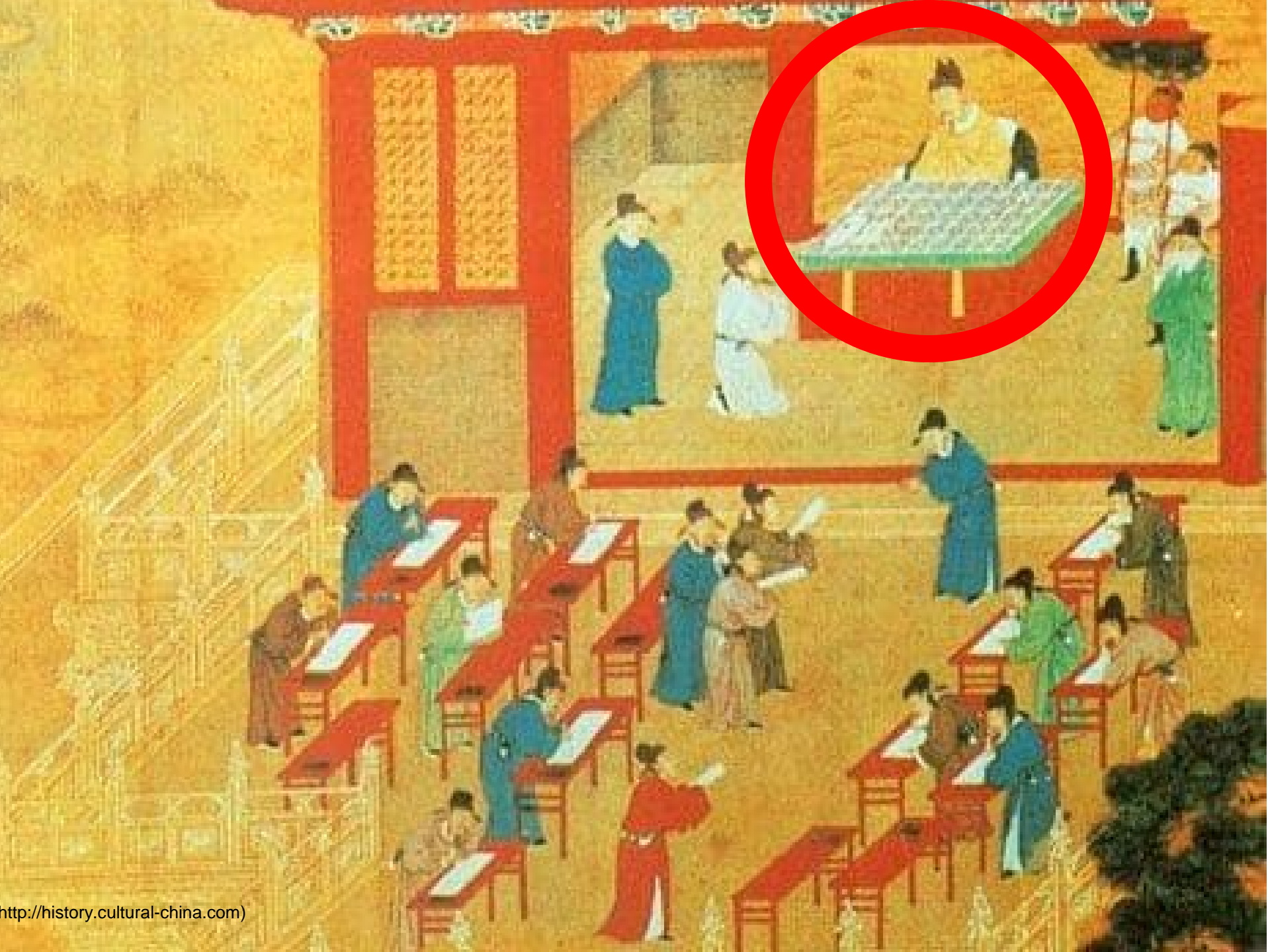
WRITING ACROSS THE CURRICULUM (WAC)

1. Writing is an expression of thinking and a tool to learning.

2. Writing involves choosing among an array of modes or forms, only some of which involve words.

3. Writing abilities are continually developed rather than mastered.

4. Writing instruction (teaching *with* writing) is a shared responsibility across all academic disciplines.

5. Those who infuse writing instruction into their teaching require ongoing, partnered support.

ollapse

Culture
. Homogenous culture
. Uniformity of pottery through
. Period of economic prosperity
. Agriculture: principle crops in
  barley and wheat

Why did the Mycena

Dr

. Theorized drought match drou
. Studies on pollen grains in su
  for drier climate
. Lack palaeoclimatic records an
. Analyses of lake sediments fro
  rectly correlated to the Medite

difference

transactions of the time

Internal Unrest

AT&T   18:21

Messages   Clear

Dec 4, 2007 18:16

Are you in class right now?

I hate this class. Nothing ever happens.

Hey have you eaten lunch yet?

Send

I O P
K L
Z X C V B N M ⌫
123   space   return

WRITING ACROSS THE CURRICULUM (WAC)

writing support	graduation requirements	instructional support
• consultations • support materials	• first-year writing • writing-intensive courses • senior project	• workshops • discussions • consultations • materials

Threats to sustained programmatic vitality in WAC

http://www.sharefaith.com/blog/wp-content/uploads/2013/05/stagnation.jpg

- Faculty resistance
- Focus on individual courses (rather than curricular systems)
- The "myth of transience" (Russell 2002)
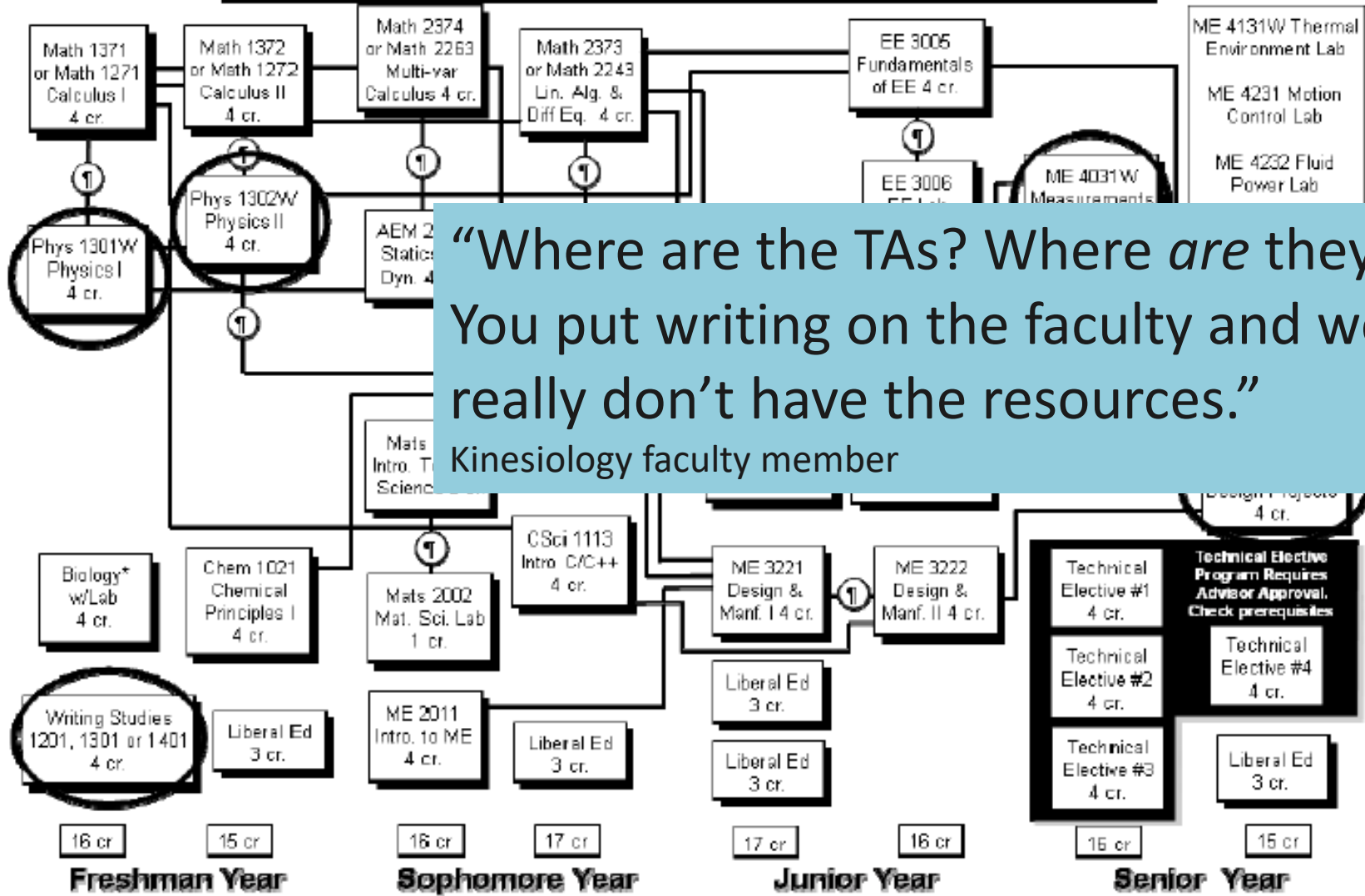- The "danger of innovations set adrift" (White 1990)
- Administrators charged with cutting costs
- Lack of direct assessment

Rel. 3

University of Minnesota — Mechanical Engineering Curriculum   08/13/07

Math 1371 or Math 1271 Calculus I 4 cr.

Math 1372 or Math 1272 Calculus II 4 cr.

Math 2374 or Math 2263 Multi-var Calculus 4 cr.

Math 2373 or Math 2243 Lin. Alg. & Diff Eq. 4 cr.

EE 3005 Fundamentals of EE 4 cr.

ME 4131W Thermal Environment Lab

ME 4231 Motion Control Lab

ME 4232 Fluid Power Lab

Phys 1302W Physics II 4 cr.

Phys 1301W Physics I 4 cr.

AEM 2 Statics Dyn. 4

EE 3006 EE Lab

ME 4031W Measurements

"Where are the TAs? Where *are* they? You put writing on the faculty and we really don't have the resources."
Kinesiology faculty member

Mats Intro. T Science

CSci 1113 Intro C/C++ 4 cr.

ME 3221 Design & Manf. I 4 cr.

ME 3222 Design & Manf. II 4 cr.

Technical Elective #1 4 cr.

Technical Elective Program Requires Advisor Approval. Check prerequisites

Biology* w/Lab 4 cr.

Chem 1021 Chemical Principles I 4 cr.

Mats 2002 Mat. Sci. Lab 1 cr.

Technical Elective #2 4 cr.

Technical Elective #4 4 cr.

Liberal Ed 3 cr.

Writing Studies 1201, 1301 or 1401 4 cr.

Liberal Ed 3 cr.

ME 2011 Intro. to ME 4 cr.

Liberal Ed 3 cr.

Liberal Ed 3 cr.

Liberal Ed 3 cr.

Technical Elective #3 4 cr.

Liberal Ed 3 cr.

| 16 cr | 15 cr | 16 cr | 17 cr | 17 cr | 16 cr | 16 cr | 15 cr |
| **Freshman Year** | | **Sophomore Year** | | **Junior Year** | | **Senior Year** | |

*Must be taken A/F. Strongly encourage Biol. 1009

Total number of credits for graduation: 128

① Indicates concurrent registration accepted

should slow down or even abandon efforts to foster global democratization. Robert Kaplan, in

roadblocks of 3 sorts

- Narrow definitions of academic writing
- The supposition that language, genres, grammar, or discourse are

<div>

Systemic

Course-based vs. curriculum-based focus

Uneven compliance with WI requirements

Inadequate funding for TA support

</div>

<div>

Conceptual

Narrow definitions of academic writing; assumptions of genre stability

Constrained conception of writing instruction

Perception of writing and content as discrete instructional areas

</div>

<div>

Attitudinal

Resistance to course or curricular "add-ons"

Disappointment with writing

Pedagogical uncertainty

</div>

- Disappointment with writing
- Perception of writing and content as discrete instructional areas

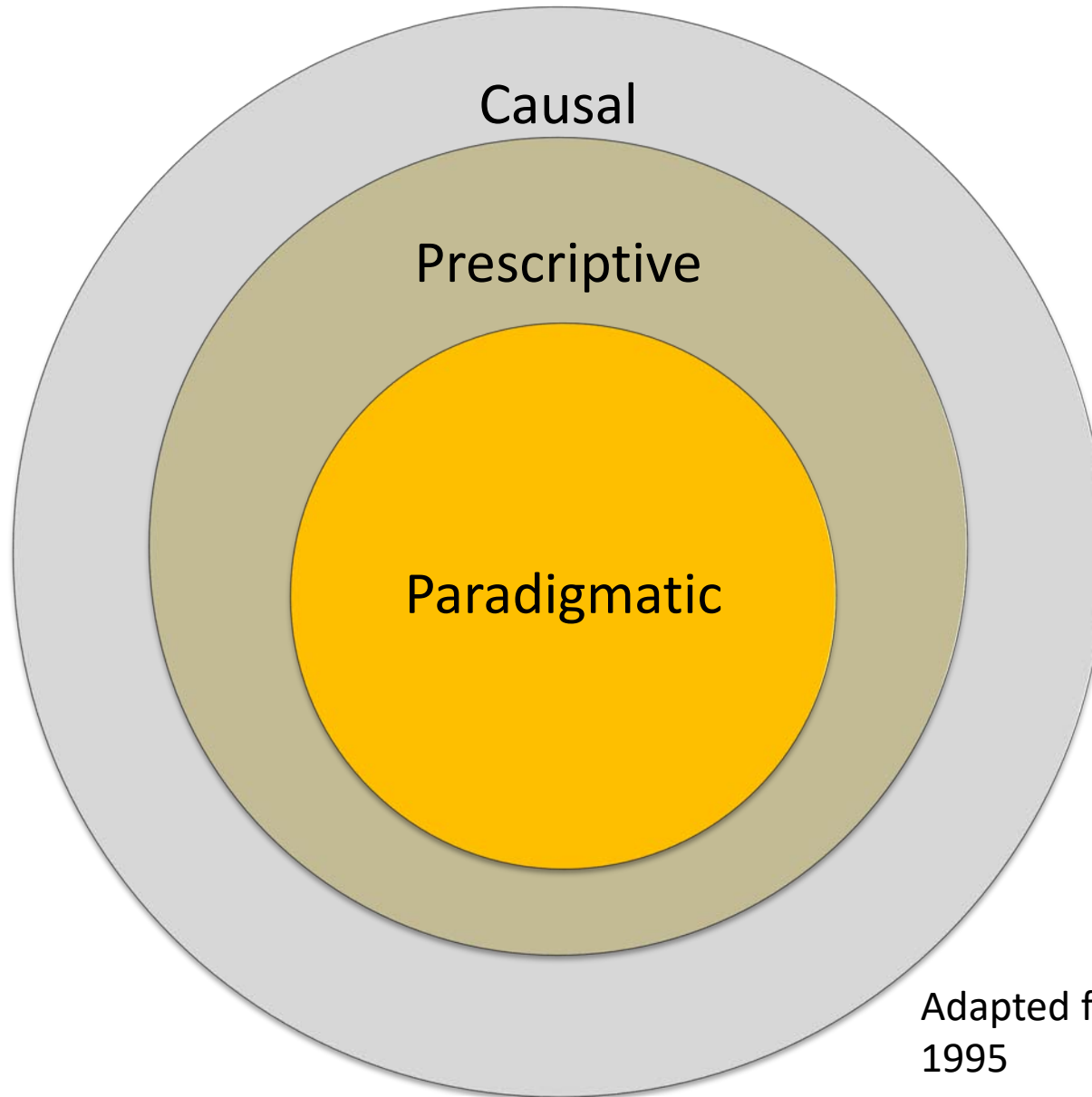"I'm a scientist. I teach science; it's not my job to teach *writing*."

"These students should know how to write before they get to my class."

"Supporting effective writing sounds fine...but not in <u>my</u> class. I have way too many students!"

Assumptions affecting pedagogic change

Causal

Prescriptive

Paradigmatic

Adapted from Brookfield, 1995

Question: How can we ensure an intentional and sustainable infusion of relevant writing instruction into diverse undergraduate curricula?

Answers:
- Put change in the hands of unit faculty
- Engage faculty in an ongoing process of unearthing, interrogating, implementing, and assessing discipline-specific writing values, practices and expectations
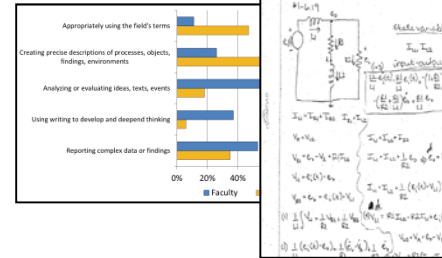- Offer long-term customized partnership and support
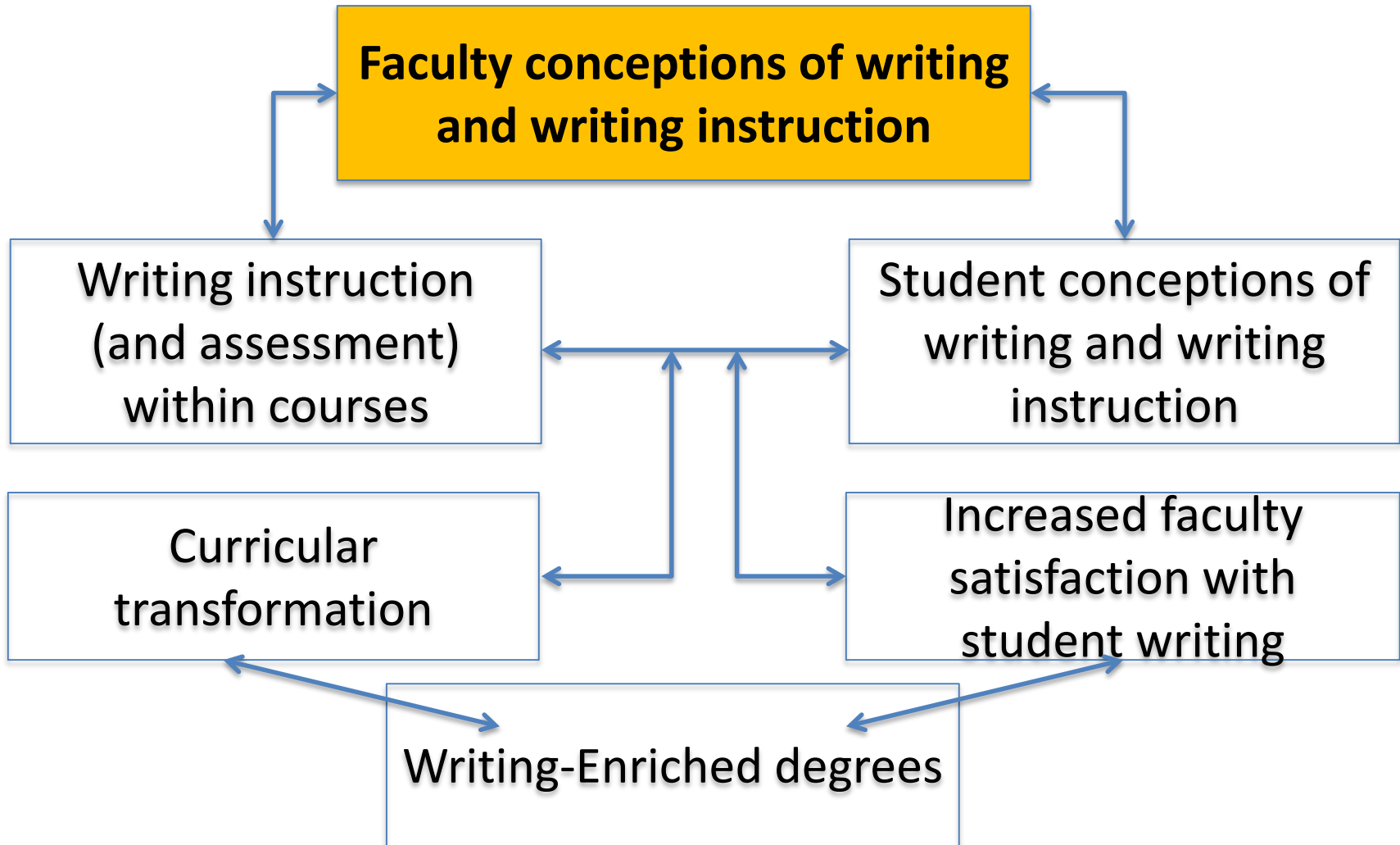
UNDERGRADUATE WRITING PLANS

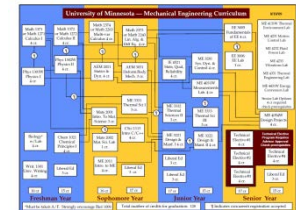**SECTION I:** WRITING CHARACTERISTICS

Meeting #1

SECTION II: WRITING ABILITIES?

SECTION III: CURRICULAR SEQUENCING?

Meeting #2

SECTION IV: ASSESSMENT?

Meeting #3

SECTION V: SUPPORT?

Meeting #4

WEC Locus: academic departments

Which of the following writing assignments have you incorporated in any of the academic major courses that you have taught within the past year? (Earth Science)

Writing assignment	Percentage
Logs, notebooks, or journals	~21%
Essays	~42%
Literature reviews or annotated…	~32%
Summaries or abstracts	~42%
Reports	~47%
Research papers	~58%
Professional communication	0%
Literary work	0%
Brief, informal responses	~21%
Presentations	~63%
Problem sets and equations	~58%
Drawings, illustrations, technical…	~16%
Web pages and wikis	~16%
Other	0%
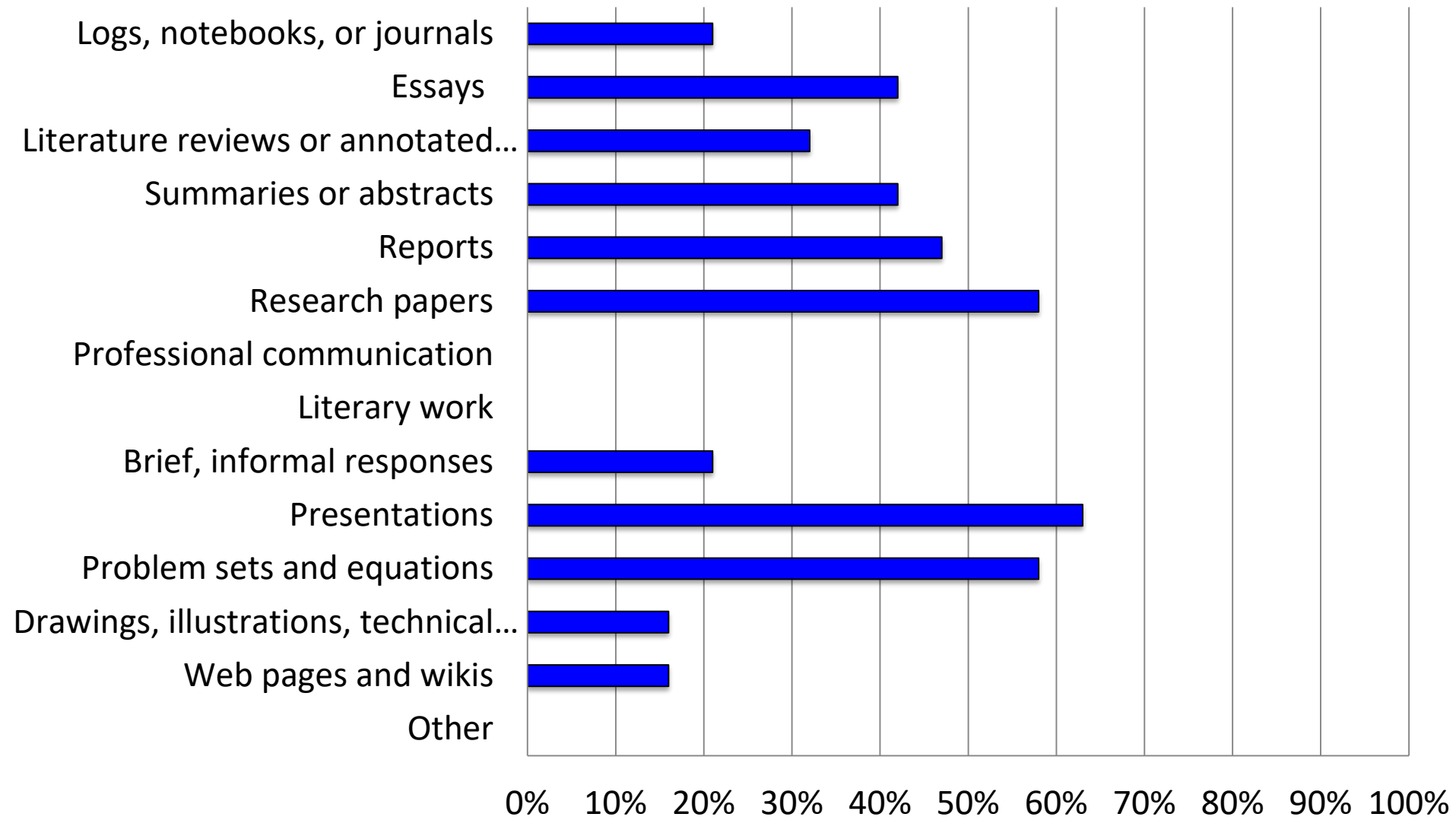
Which three writing abilities are most important in this major? (Earth Science)
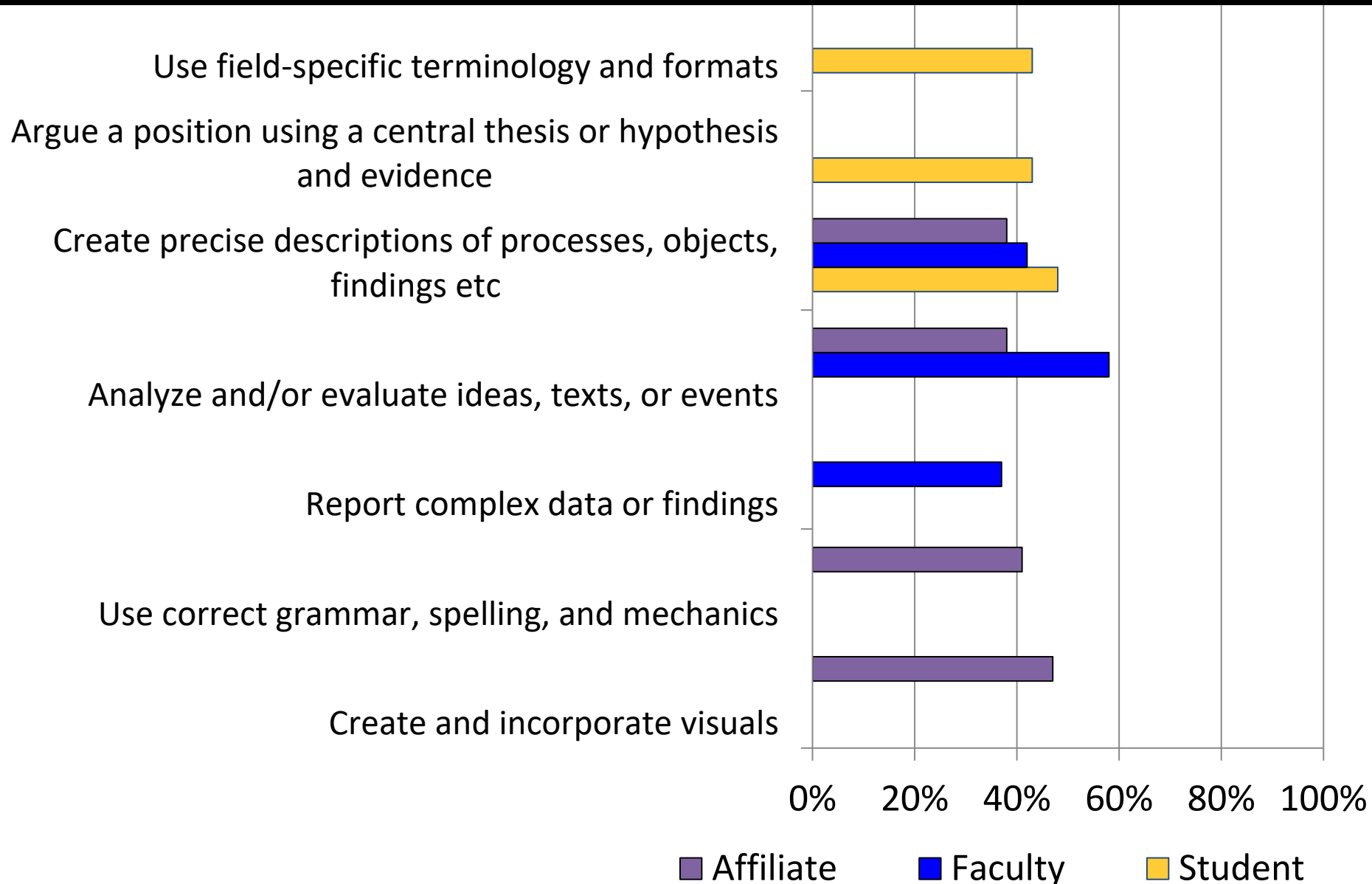
Analyze

Pursue a focused and feasible research question (Geography)

Examine empirical data using qualitative and quantitative methodologies and/or theoretical lenses (Sociology)

Report unanticipated or contradictory findings (Physics)

Scrutinize texts for gaps in theoretical application (Literature)

Explicate the logic (Philosophy)

Contextualize the art object by explicating its geographic, historic, cultural, and economic circumstances (Art History)

Development of Mastery *Sprague and Stuart (2000)*

https://eradica.wordpress.com/2014/04/19/jumping-the-gap/

SH: One thing we haven't talked about is **objectivity**—*the opposite of expressing feelings, which we didn't select as one of the abilities we value, but I think that is meaningful because we want the opposite of that; that's what we strive for.*

SL: *And it is one of the things I certainly respond most vitriolicly to when I get something to read and it's all about "I did this..." and "I thought this..."*

SH... *ugh...it makes your skin crawl. [1:41:50]*

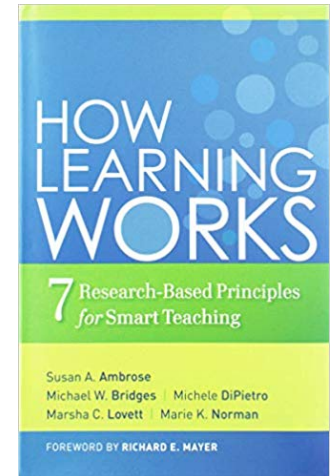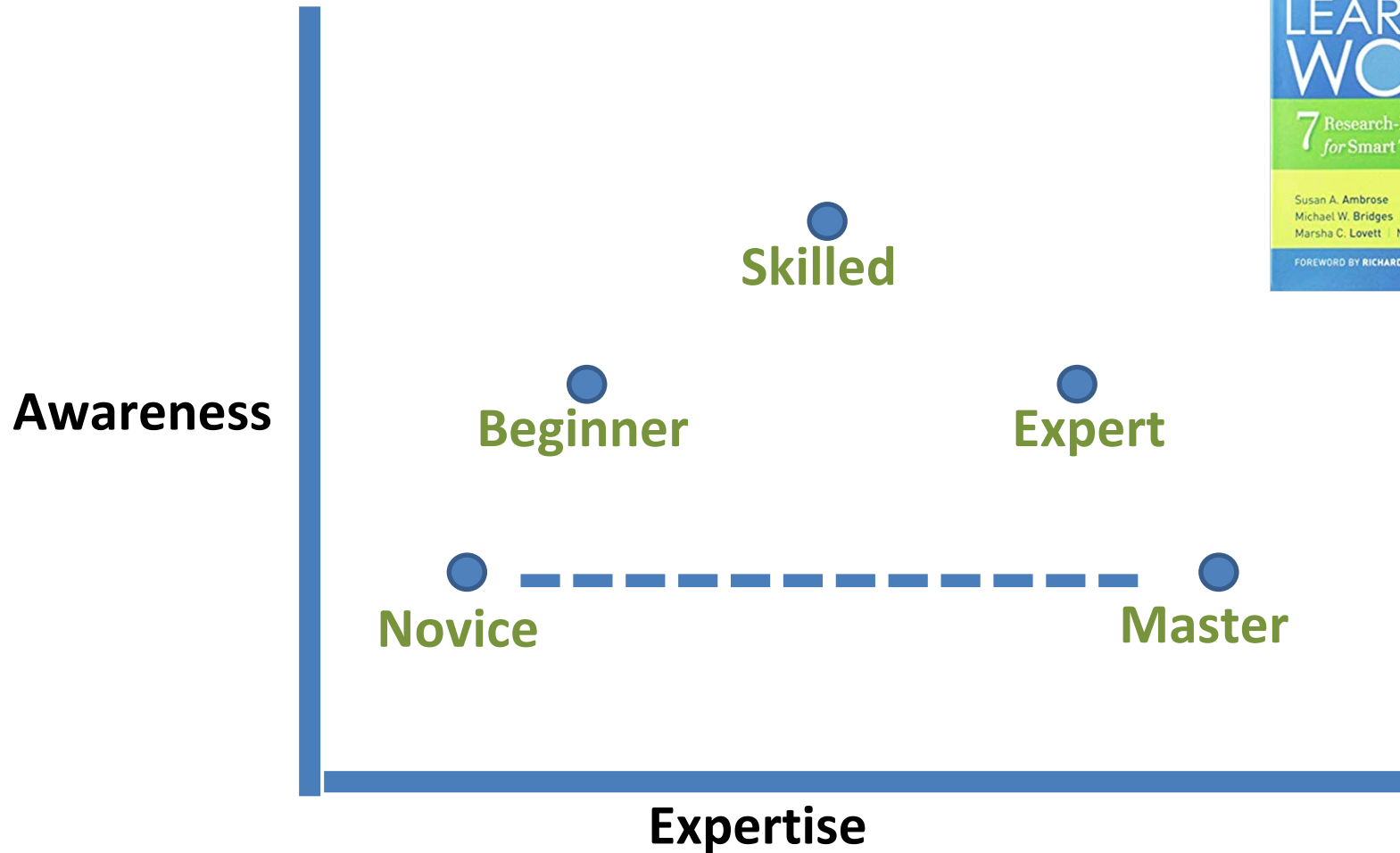PF: So how would you describe this? *Because if you say "objective," no one really knows what that means, do they?*

SL: *They don't? Why don't they?*

SH: Remove the writer out of it...*They often say "Shaw et al. said this" and the emphasis is on Shaw et al. rather than the result or the finding...*

PF: So, you want them to deemphasize the scientists and focus on the science, but... do students in your courses run the danger of accepting the science they report as Truth?

SH: *Well, I think the difference is* **replicability**; *that, uh, if* someone else came along and did the exact same study that so and so described that they did they should have gotten the exact same results. So I see scientific writing as not so egotistical...it's **contributive**.

JC: *That's a bunch of crap. You're mixing undergraduate and graduate writing.* Replicable yes, contributive no...

EARTH SCIENCES

Prof A: Well, it should be clear! We want them to be able to explain in words the meaning of data and figures….really, to make them understandable to a reader who does not have the data or figures.

Prof B: They… should, uh… summarize and *synthesize* observations, data, and information in abstracts or executive summaries. But first in visuals…

Prof C: Right…they…should know how to represent concepts and findings…design and create figures, graphs, and diagrams

From criteria menu: The text…
Explains the meaning of data and figures so that they are understandable to someone who does not have the data or figures.
Communicates information, data, and concepts in figures, graphs, and/or diagrams clearly with <u>complete captions</u>.
Communicates information, data, and concepts in figures, graphs, and/or diagrams clearly without extraneous or <u>distracting elements</u>.

Writing? Content?

"Wait…Is this writing abilities, or is this about how to do the science? I think we're messing this up a little bit here…I mean we think science is important but writing about it is a different thing."

"But, X, we make them write about the science…we're the ones!"

Chemistry faculty members, WEC meeting #1 (2016)

University of Minnesota — Mechanical Engineering Curriculum

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Math 1372 or Math 1272 Calculus II 4 cr.

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Math 2373 or Math 2243 Lin. Al. Dif. 4 cr.

EE 3005 Fundamentals of EE 4 cr.

ME 4131W Thermal Environment Lab

ME 4231 Motion Control

Phys 1302W Physics II 4 cr.

Phys 1301W Physics I 4 cr.

AEM 2011 Statics Dyn.

AEM 3031 Deform.Body Mech. 3 cr.

IE 4521 Stats, Qual, Reliability 4 cr.

ME 3281 Sys. Dyn. & Control 4 cr.

EE 3006 EE Lab 1 cr.

ME 4232 Fluid Power Lab

ME 4233 Vibrations Lab

ME 4231 Thermal Engineering Lab

ME 4431W Energy Conversion Lab

Senior Lab Option if required. Check pre-requisites

ME 4031 Measurements Lab. 4 cr.

ME 3331 Thermal Sci I 3 cr.

ME 3332 Thermal Sciences II 3 cr.

ME 3333 Thermal Sci III 3 cr.

ME 4054W Design Projects 4 cr.

Mat 3001 Intro. to Mat. Science 4 cr.

CSci 1113 Intro C/C++ 4 cr.

Biology* w/Lab 4 cr.

Chem 1021 Chemical Principles I 4 cr.

Mats 2002 Mat. Sci. Lab 1 cr.

ME 3221 Design & Manf. I 4 cr.

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Technical Elective Program Requires Advisor Approval Check prerequisites

Technical Elective #2 4 cr.

Technical Elective #4 4 cr.

Writ. 1301 Univ. Writing 4 cr.

ME 2011 Intro. to ME 4 cr.

Liberal Ed 3 cr.

Liberal Ed 3 cr.

Liberal Ed

Technical Elective #3 4 cr.

Liberal Ed 3 cr.

Liberal Ed 3 cr.

| 16 cr | 15 cr | 16 cr | 17 cr | 17 cr | 15 cr | 17 cr | 15 cr |

Freshman Year   **Sophomore Year**   **Junior Year**   **Senior Year**

*Must be taken A/F. Strongly encourage Biol 1009.

Total number of credits for graduation: 128

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Computer Science pre-WEC curriculum

List of expected writing abilities ⬇   **Courses (1K-4K)** ➡
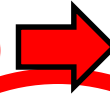
Number	Ability	1901	1902	2011	2013	3003	3081W	3081	4041	4061	4061	4211	4211
1	**Describe software or system processes** accurately, clearly and illustratively, using appropriate structures.	n	n			n	a	i	n	n		i	i
2	**Provide low-level code explanations such as comments** accurately, concisely, and informatively.	n	i				a	a	n	i	i	i	i
3	**Describe algorithms** accurately and concisely, with appropriate structure, and appropriate balance between high-level characteristics and low-level details.	n	n			n	a	n	n	i,a	i	i	
4	**Write for specific audiences** with appropriate tone, level of explanation, and accessibility.	n	n				i	i	n	i,a	n	n	
5	Use appropriate structures (e.g., lists, visuals cite appropriately, and integrate into the text.	n	n	n			i	i	i	n		i	n
6	Justify choices of design, algorithms, etc. persuasively, clearly explaining the	n	n			n	i	n	n		n	i	n
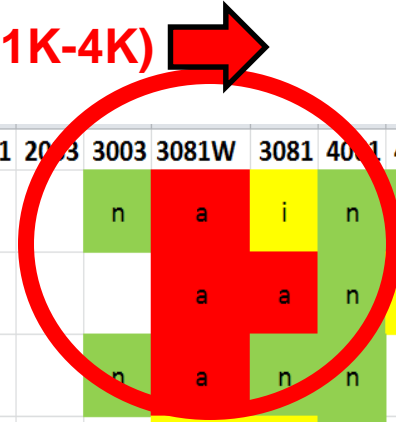
"Writing <u>transfer</u> is the phenomenon in which new and unfamiliar writing tasks are approached through the application, remixing, or integration of previous knowledge, skills, strategies, and dispositions."
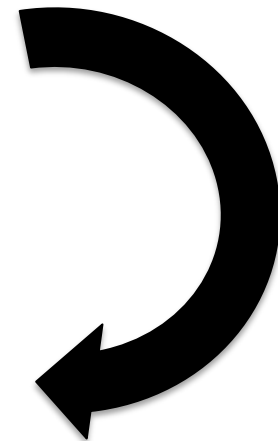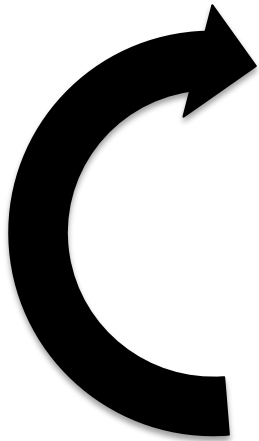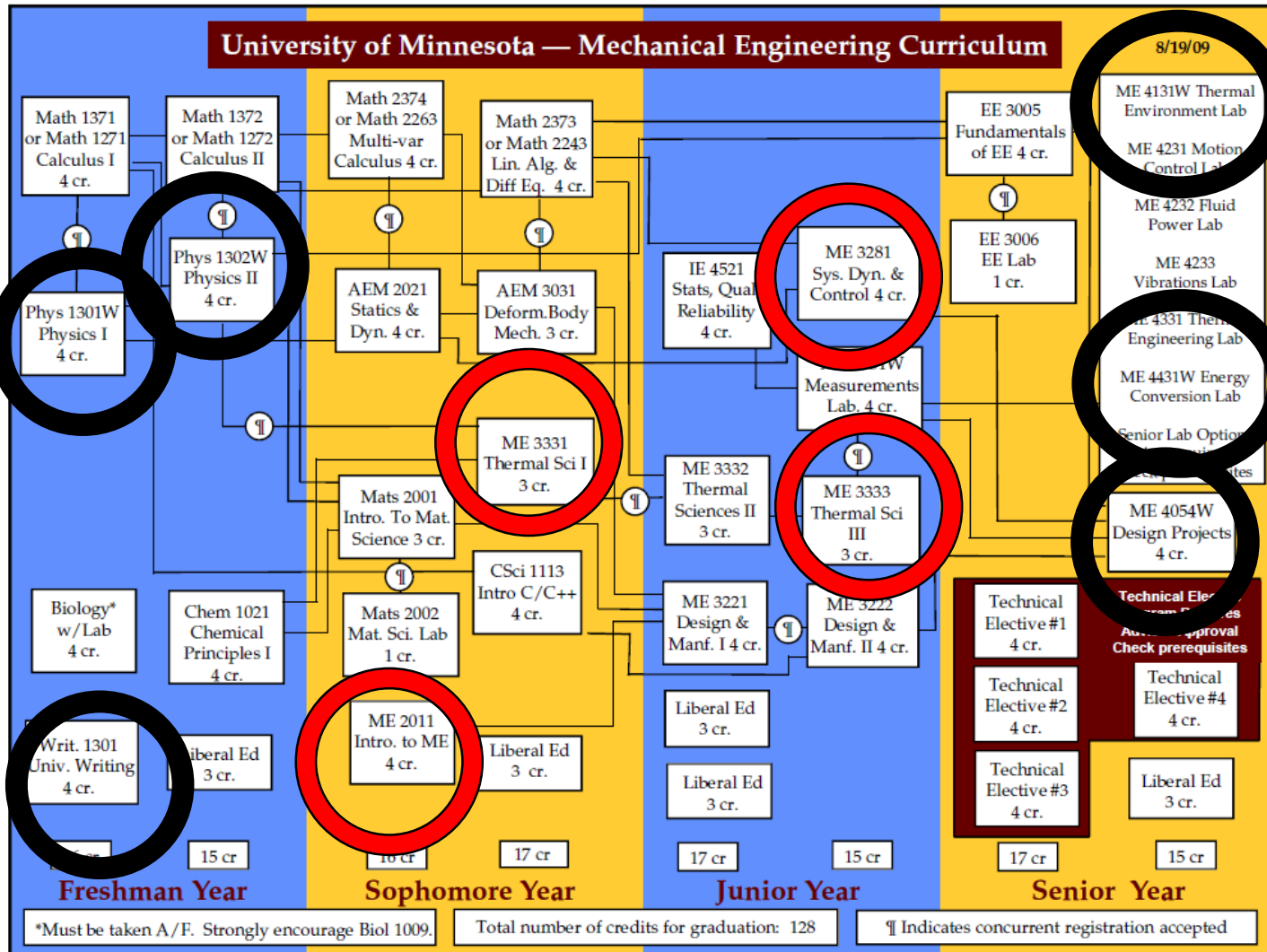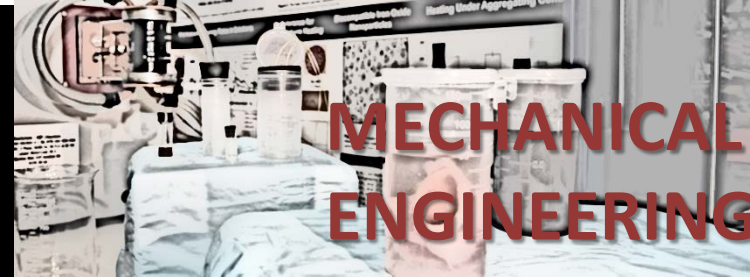
(Elon statement 2013

Implementation case study #1

University of Minnesota — Mechanical Engineering Curriculum

Student

Writing

Guide

UNIVERSITY OF MINNESOT
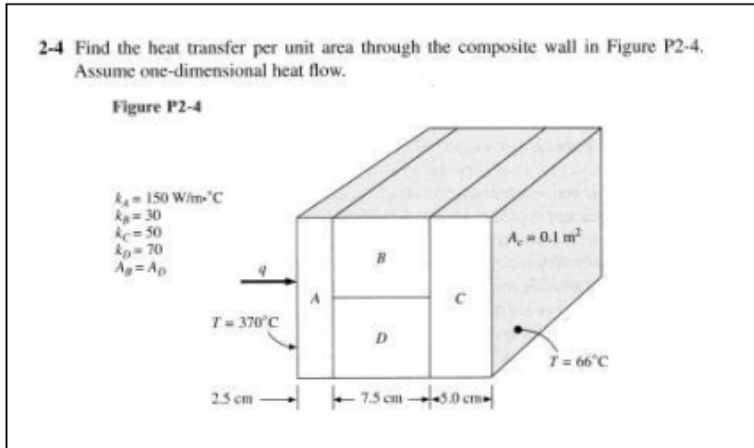
Mechanical
Engineering

This guide will show you how to write a problem set.

1.   Before you begin

If you understand the purpose of your writing before you begin, your problem set will turn out better. This section describes background information and the purpose of a problem set.

1.1   Why this is important

You will come across problems such as the following very often in your mechanical engineering coursework:

2-4 Find the heat transfer per unit area through the composite wall in Figure P2-4. Assume one-dimensional heat flow.

Figure P2-4

$k_A = 150$ W/m·°C
$k_B = 30$
$k_C = 50$
$k_D = 70$
$A_B = A_D$

$A_C = 0.1$ m²

q

B

A C

$T = 370$°C

D

$T = 66$°C

2.5 cm   7.5 cm   5.0 cm

Source: Holman, J. (2010). Heat Transfer 10th Edition

However, the very **worst** answer you can submit to a homework problem is:

HOMEWORK 2   TOMMY TUTONE

2-4)   114 $\frac{KW}{m^2}$
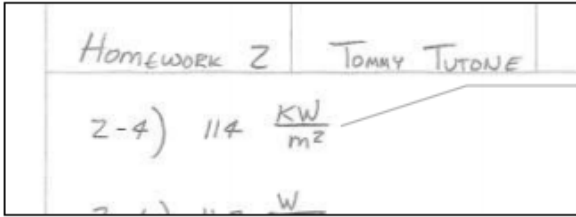
Numerically correct, but no logic shown. (few pts)

The reason is that the grader doesn't care what your answer to the problem is. Instead, the grader wants to know the logical thought process you used to get there.

In engineering practice, problems are seldom as simple and straightforward as an engineering textbook. However, if we can verify the **logic and assumptions** you use to deduce a textbook answer, we can grow your professional skills.

The issue of potential impact on species richness under potential climate change conditions has largely been examined in alpine regions (Moen et al. 2008). Furthermore, a paper examined potential outcomes of species richness in Europe (Thuiller et al. 2006). However, the boreal forest of North America is also receiving attention in modeling distribution of tree species (McKenney et al. 2007). In addition, vegetation changes were modeled for northern Alaska in relation to climate change conditions (Euskirchen et al. 2009).

1. What's the problem?
2. Why?
3. Suggested revisions?
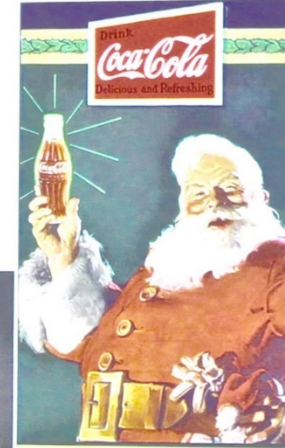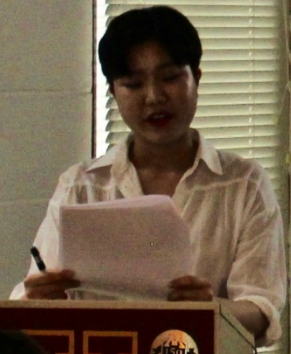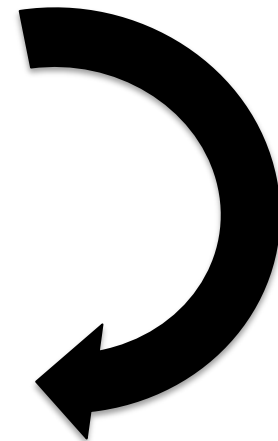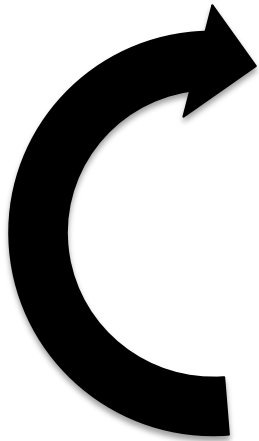
ASSESSING WEC: RATING
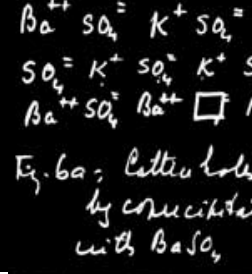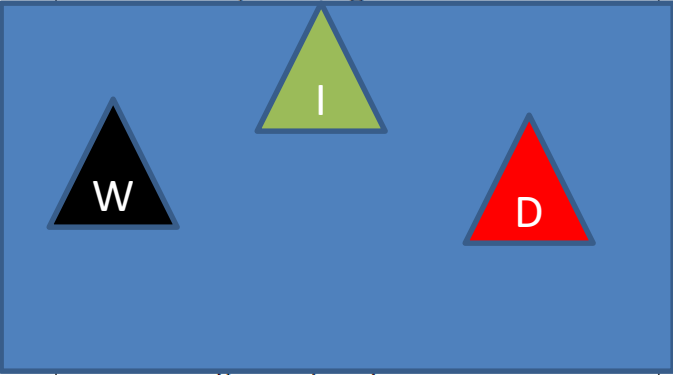
1. Expected Writing Abilities are translated into rat...

2. Iterative rating se... which 3 raters (2... target unit) rate c... papers/projects a... generated criteria...

3. Rating results (an... comments) are pr... who are asked fo... reactions/observa...

Criteria for Ratings.2011.CBS.

Writing Plan Abilities	PROPOSED Criteria for Rating
1. Communicate information in a manner that is overt and logical.	a) Communicates a scientific narrative that is direct, with an overt and transparent logic.
2. Communicate information in a manner that is precise and concise.	
3. Present and interpret data in context.	
4. Synthesize ideas in new ways.	... synthesis of evidence.
5. Analyze and interpret published work, gauging the efficacy of evidence.	g) Critiques reasoning, data, and/or methodology of published work.
6. Identify significant gaps in scientific knowledge and develop research questions to address those gaps.	h) Demonstrates an organization that moves from an articulation of the target question or problem to procedure, data, conclusions, and back to target problem.

W   I   D

WEC Ratings for sample department in the College of Science and Engineering

WEC

#	Criteria: The text…	2013	2016
1	Synthesizes information and ideas from multiple or disparate sources.	.59	.81
2	Consistently uses language appropriate for scientific audiences.	.53	.73
3	Describes what is seen (in the field and/or lab), read (in an article, book, and/or website), or heard (in class, lab, and/or the field) so that the observations and information is understandable to someone who was not present.	.58	.57
4	Explains the meaning of data and figures so that they are understandable to someone who does not have the data or figures.	.32	.54
5	Answers a question or makes a point using <u>logically sequenced sentences</u>.	.71	.77

0= insufficient ; 1= sufficient

2013 N = 287 pages
2016 N = 275 pages

Threats to sustained programmatic vitality in WAC

http://www.sharefaith.com/blog/wp-content/uploads/2013/05/stagnation.jpg

- Faculty resistance
- Focus on individual courses (rather than curricular systems)
- The "myth of transience" (Russell 2002)
- The "danger of innovations set adrift" (White 1990)
- Administrators charged with cutting costs
- Lack of direct assessment

Evidence of sustainable change...

- Faculty methods, perceptions, and confidence (transcripts, surveys, interviews, assignment analysis)

- Explicit instruction and authentic assessment (Writing Plans, annual Liaison survey)

- Course-based vs. curriculum-based integration (Writing Plans)

- Rate at which student writing is meeting faculty expectations (Triennial rating)

- Rate at which student writers report engagement with productive writing practices (Student Engagement in Research Universities (SERU)

Writing-Enriched Curriculum?

A faculty-driven model designed to support the curricular integration of relevant writing and writing instruction and to increase the rate at which student writing meets local faculty expectations.

These ends are achieved through the ongoing, creation, implementation, and assessment of undergraduate Writing Plans

WRITING-ENRICHED CURRICULA

1. Writing is an expression of thinking and a tool to learning.

2. Writing involves choosing among an array of modes or forms, only some of which involve words.

3. Writing abilities are continually developed rather than mastered .

4. Writing instruction (teaching *with* writing) is a shared responsibility across all academic disciplines.

5. Those who infuse writing instruction into their teaching require ongoing, partnered support.

6. **Unchallenged, tacit-level conceptions of writing and writing instruction inform the ways that writing is incorporated in courses and curricula**

7. **Systemic, curricular incorporation of writing is most meaningfully achieved when those who teach are provided multiple opportunities to articulate, interrogate, and communicate their assumptions and expectations**.

	WEC: critical attributes / methods
Elective	
Faculty-driven (department-located)	• Writing and writing instruction are <u>locally defined</u> • <u>Conceptual change</u> drives pedagogic and systemic change
Curriculum-focused	• Writing is discussed in <u>curricular context</u>
Data-driven	• <u>Locally collected, locally-owned data</u> are brought to each meeting for <u>interpretation and discussion</u>
Slow-paced (sustained)	• Writing Plan <u>evolves</u> over three editions in a decade (+) • Plans are <u>context relevant</u> and build toward <u>self-sustainability</u>
Supported	• <u>Liaisons</u> paid stipend • Plans are granted <u>implementation funds</u> • WAC consultant serves as unit-dedicated <u>long-term partner</u>
Perpetually-assessed	• <u>Multiple modes of unit-specific and programmatic assessment</u> focus on instruction, writing, Writing Plans, WEC, methodology…

Question

What aspects of the WEC model would / would not work well in your teaching context? Why?
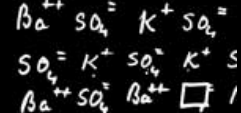
EXTRAs

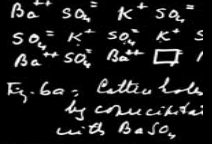| **What effect is creating, implementing, and assessing a Writing Plan having on writing instruction in WEC units?**	Direct: assignment analysis Indirect: • Writing Plans • Meeting transcriptions • Curricular mapping • Annual Liaison survey/focus groups
What impact is WEC having on student writing?	Direct: Triennial rating of student writing Indirect: Annual U-Wide surveys
How successful is the WEC model for creating faculty-authored Writing Plans?	Direct: Board approval of Writing Plans Indirect: Annual Liaison survey/focus groups Application for WEC enrollment

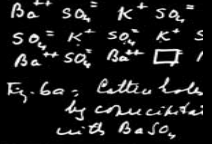| Question	Indices	Timing / Audience
What are students writing? Where? What does instruction look like? Where?	• Sample collection • Stakeholder survey • Curricular matrices	baseline / faculty Year 10 / faculty

Question	Indices	Timing / Audience
What are students writing? Where? What does instruction look like? Where?	• Sample collection • Stakeholder survey • Curricular matrices	baseline / faculty Year 10 / faculty
What effect is creating, implementing, and assessing a Writing Plan having on writing instruction in WEC departments?	• Writing Plans (100) • Meeting transcriptions • SERU • Focus groups (faculty) ----------------------------------- • Customized assessment	Year 1, 2, 5, 10 / faculty + CWB Year 1 / faculty Biennial / Provost's Office Episodic / WAC team ------------------------------------ Variable / faculty

| Question	Indices	Timing / Audience
What are students writing? Where? What does instruction look like? Where?	• Sample collection • Stakeholder survey • Curricular matrices	baseline / faculty Year 10 / faculty
What effect is creating, implementing, and assessing a Writing Plan having on writing instruction in WEC departments?	• Writing Plans (100) • Meeting transcriptions • SERU • Focus groups (faculty) --------------------------------- • Customized assessment	Year 1, 2, 5, 10 / faculty + CWB Year 1 / faculty Biennial / Provost's Office Episodic / WAC team ----------------------------------- Variable / faculty
What impact is WEC having on student writing?	• Rating of student writing • SERU • Writing Plans	Triennial / faculty Biennial / Provost's Office Year 1, 2, 5, 10 / faculty + CWB

| Question	Indices	Timing / audience
How successful is the WEC model for creating faculty-authored Writing Plans?	• Writing Plan approval • Liaison surveys • Focus groups (faculty) • Applications	Monthly / Departments Annual / WAC team Episodic / WAC team Annual /WAC team
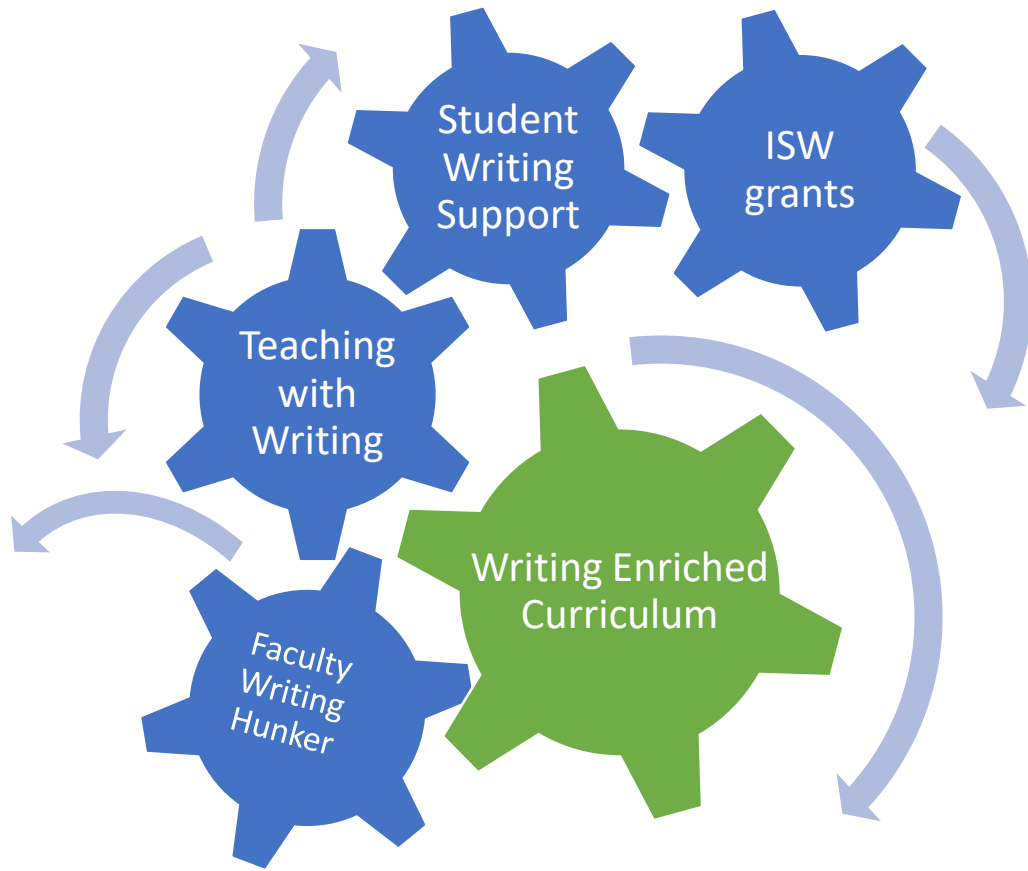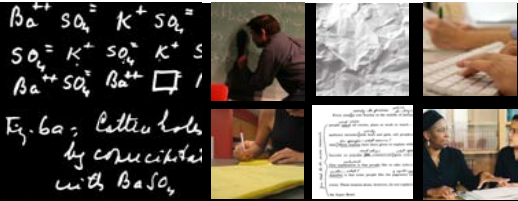
Student
Writing
Support

ISW
grants

Teaching
with
Writing

Writing Enriched
Curriculum

Faculty
Writing
Hunker

WRITING-ENRICHED CURRICULUM PROGRAM

Numbers as of May 2019
Departments & Programs: 61
Majors: 97
Students enrolled in WEC units: 17,244
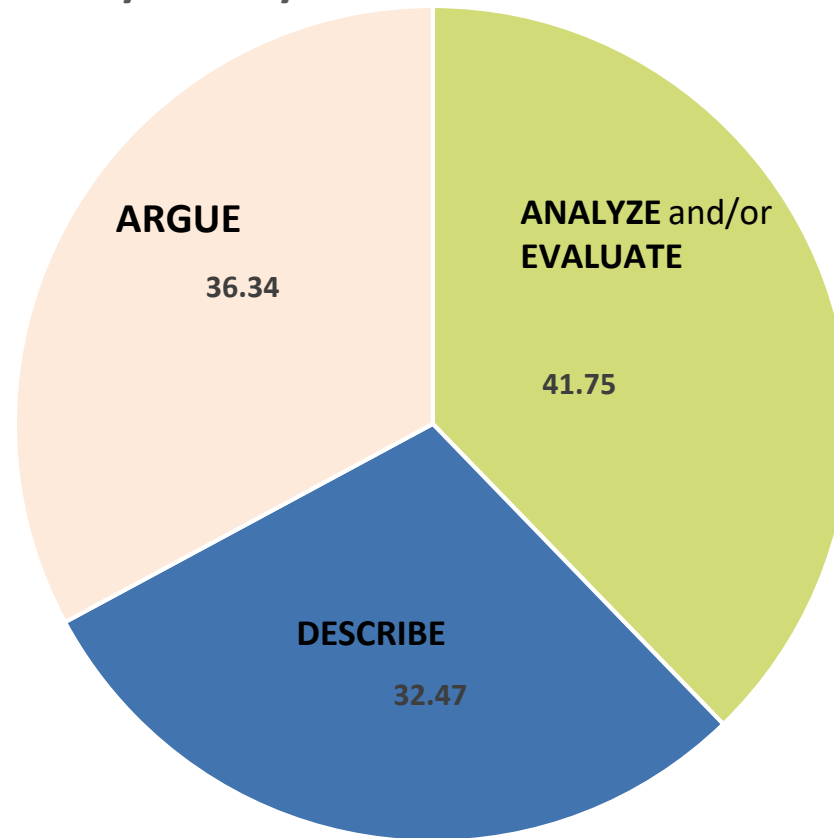WEC surveys: 9000 completed
Writing Plans approved: 105

WEC majors by college
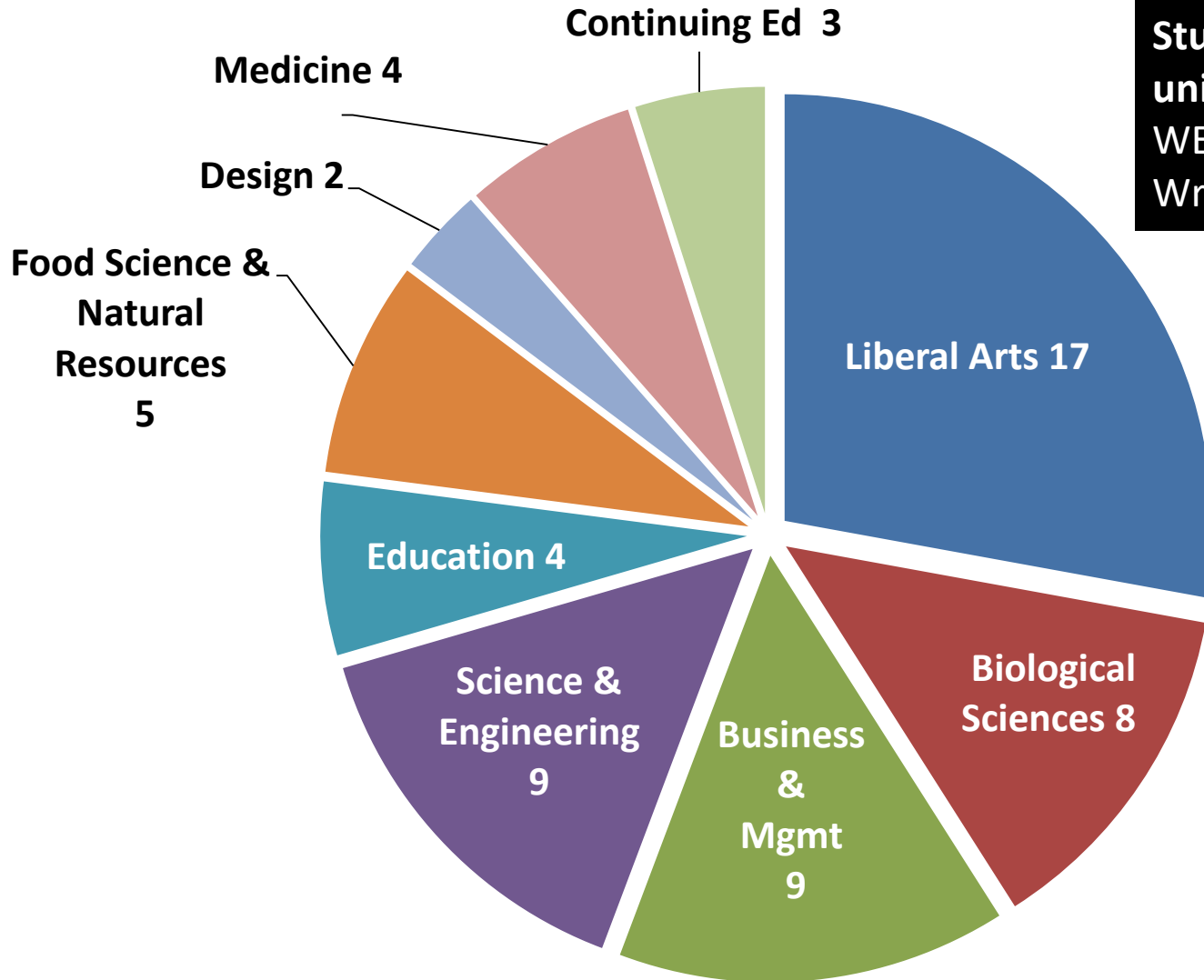
WEC Survey: 2013-2017: 18 WEC departments across five colleges
Top 3 of 16 writing abilities

Writing Abilities Expected by Faculty

ARGUE
36.34

ANALYZE and/or
EVALUATE

41.75

DESCRIBE

32.47

- Analyze and/or evaluate ideas, texts, and events
- Create precise descriptions of processes, objects, findings, evironments, etc.
- Argue a position using a central thesis or hypothesis and evidence
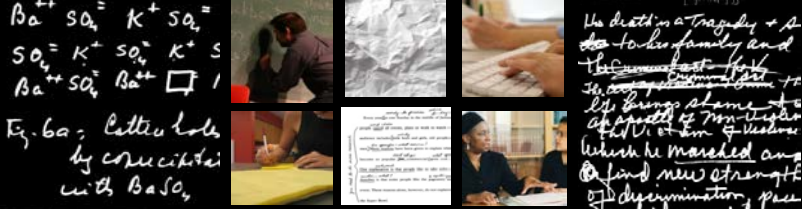
FISCAL SUPPORT
- Professional development funds for Faculty Liaison
- Funds supporting approved implementation activity

ASSESSMENT DATA
- Thorough baseline survey data (three populations)
- Comprehensive, de-identified student writing samples (and sample instructional materials) from three courses
- Curricular maps
- Longitudinal rating data
- Other (as undertaken by units)

INSTRUCTIONAL SUPPORT
- Workshops, consultations, material development (as designated in Plan)
- Student writing samples (and sample instructional materials) from three courses

2014 SERU Academic Outcomes and Experiences: WEC Participant vs. Other
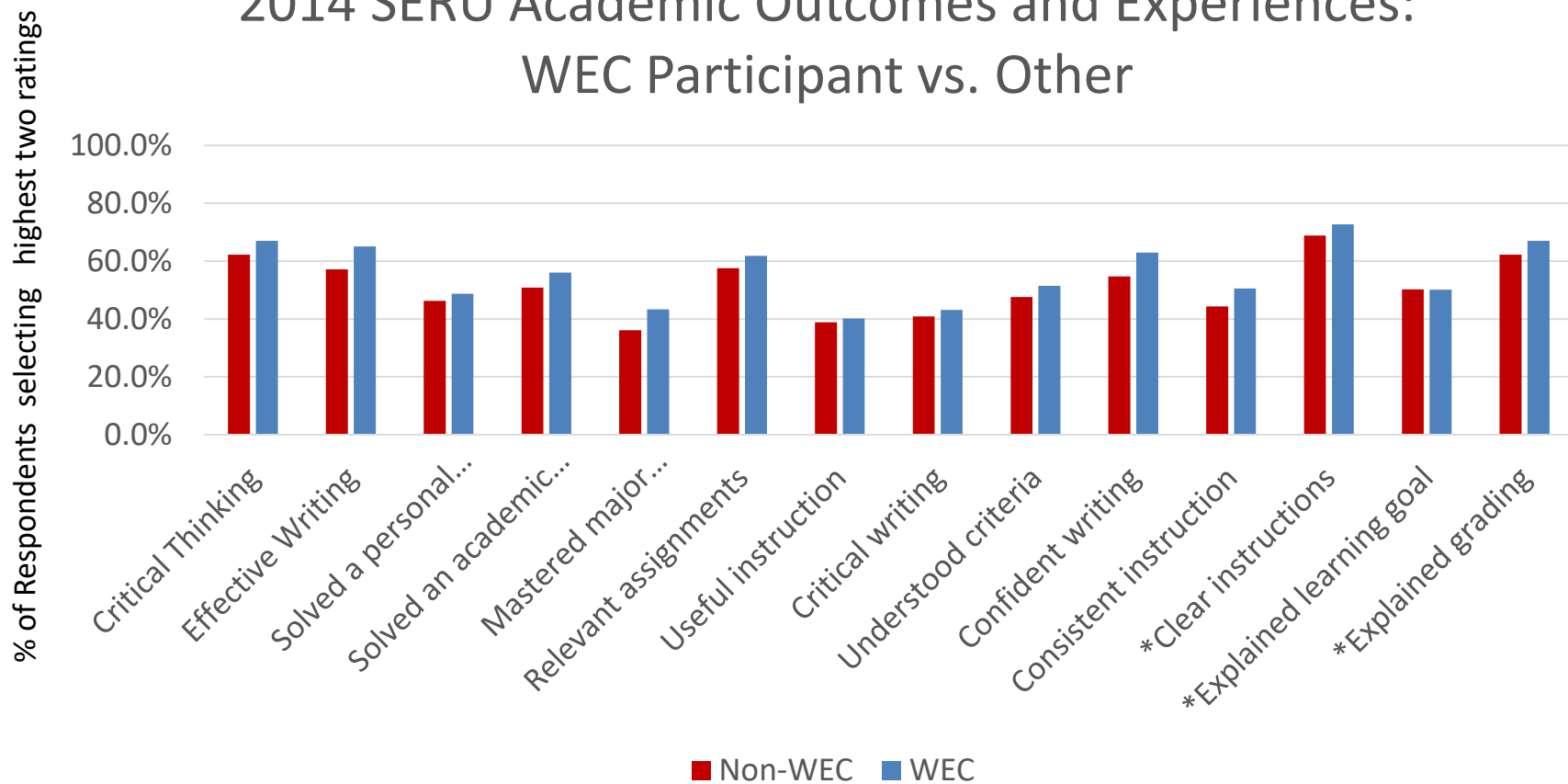
WHAT ABILITIES DO WE NEED TO WRITE EFFECTIVELY IN THEATRE?

Conduct research
- Recognize the different definitions, values, and processes of research pertinent to different dimensions of our discipline, and develop appropriate research strategies to support your work.
  - For **textual research** it is important to
    - Develop familiarity and comfort with library resources
    - Learn to distinguish between primary and secondary sources
    - Assess the reliability and value of web-based resources
    - Effectively document your sources
  - For **observational or practical research** it is critical to
    - Cultivate the habit of mark-making in verbal or graphic form
      - Develop a practice of recording thoughts, images, and ideas as a response to environment and everyday experience, and as a record of creative process
      - This habitual practice may take the form of free-writing, stream of consciousness writing, doodling, note-taking, sketching, collecting, etc.
  - For **organizational research** we must
    - Collect information and organize it in a user-friendly and efficient manner
    - Anticipate questions that may arise, and be prepared to answer them
- Develop methods of integrating your research into your creative work

Unlock and explore the imagination
- Go beyond your first instinct, what you think is 'right', and/or what is literal
- Take risks, be willing to make mistakes and get messy
- Keep open and develop multiple options

Create descriptions of performance, design components, and/or dramatic texts
- Craft detailed, evocative, and closely observed descriptions of others' artistic work as well as

Selected group of theoretical concepts/research studies that help us understand the WEC model's design/success

WEC approach	Flash. P. (2016) Anson, C. Carter, M. (1991)
Sustainable educational initiatives	Fullan, M. (2004, 2015) Henderson, C. Beach, A. Finkelstein, N. (2011) Cox, Galin, and Melzer (2018)
Teaching for transfer	Yancey, K.B.. Taczak,K., Robertson. L. (2015) Nowacek, R. (2011)
Threshold concepts	Lave and Wenger (1991) Adler-Kassner L. and Wardle, E. (2015)
Activity theory	Engstrom, T. (1987) LeonT'ev. A (1981) Russell, D. (1995)
Authentic writing assessment	Broad, B.(2003) Huot, B. (2002) Adler-Kassner and O'Neil (2010)
Learning	Committee on Developments in the Science of Learning (1999, 2018)

University of Minnesota, Twin Cities
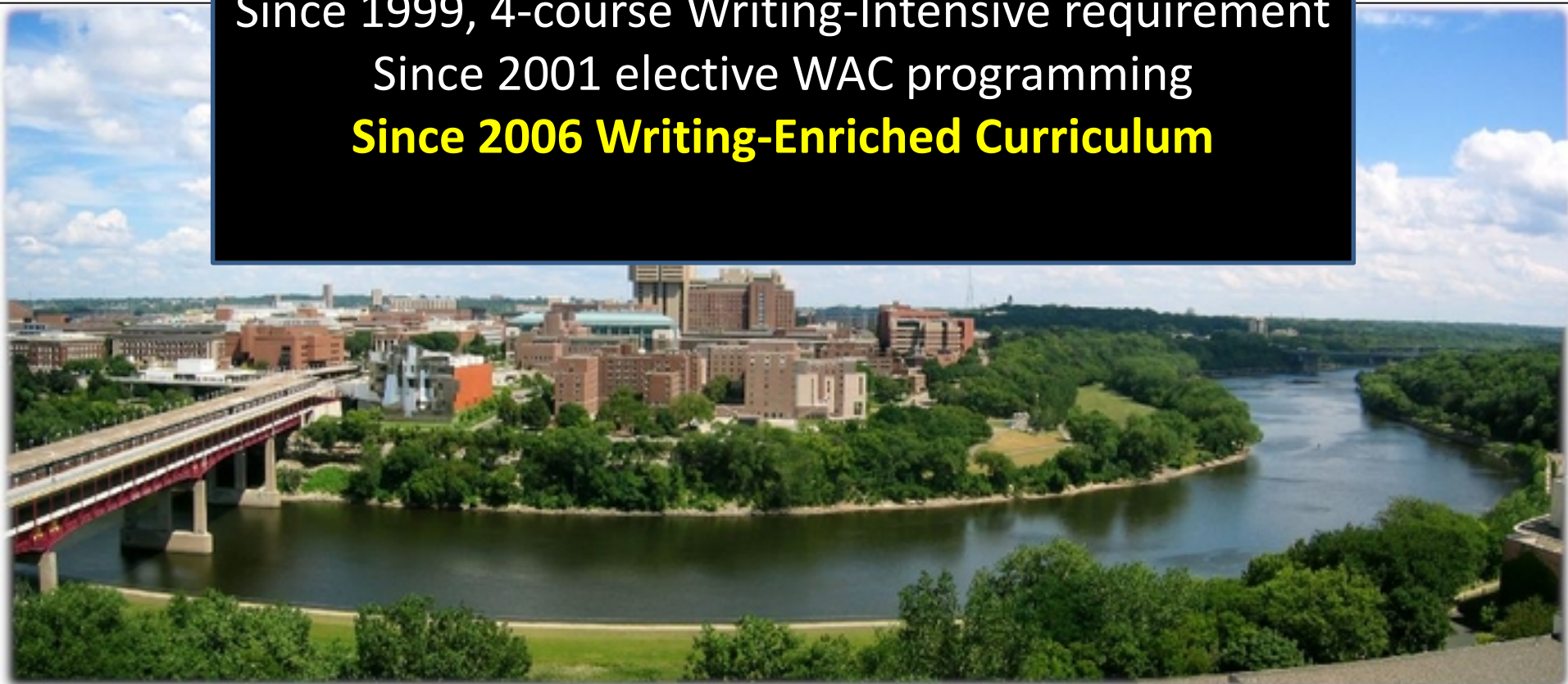
Public, land-grant, R1
43K students (30,500 undergraduate) (Twin Cities)
1-semester First Year Writing requirement
Since 1999, 4-course Writing-Intensive requirement
Since 2001 elective WAC programming
Since 2006 Writing-Enriched Curriculum

ANTHROPOLOGY

Writing-Enriched Curriculum Abilities: Correlating writing abilities with explicit instruction	Course 1	Course 2	Course 3	Course 4	Course 5	Course 6	Course 7	Course 8	Course 9	Course 10	Course 11	Course 12
1. Articulate specific, relevant, and compelling research questions and themes that are appropriately scaled to the assignment	░	▓	▓	░	▓		▓	▓				▓
2. Weave analyses of direct, specific data into a coherent text that directly addresses the thesis/research question			▓		░							▓
3. Convey observations in specific, accurate, and rich detail			▓				░	▓			▓	▓
4. Contrast and synthesize multiple lines of evidence	▓		░			▓	▓					░
5. Situate writing within the broader questions and themes of the discipline		▓	▓		▓		░				▓	▓
6. Formulate and express independent ideas that deeply interrogate the literature	░									░	░	
7. Draw specific conclusions based on a thorough assessment of the strengths and limitations of evidence and alternate interpretations			░		░		▓				▓	▓
8. Recognize the impact of assumptions and biases			▓			▓	▓			▓		░
9. Engage ambiguity and uncertainty	▓	░					░	░	░			▓

Legend:

▓ Faculty-identified writing abilities that (a) challenge students and (b) are currently addressed with explicit instruction

░ Faculty-identified writing abilities that (a) challenge students and (b) are **not** currently addressed with explicit instruction