

Statics - TAM 210 & TAM 211

Wayne Chang

Spring 2019

Outline

- Course Policy
- Course Resources
- Course Elements
- Tools for Success
- Intro to Statics – Course Overview

Course Websites

MAIN PAGE - <https://courses.engr.illinois.edu/tam210/index.html>

TAM 210/11: Statics

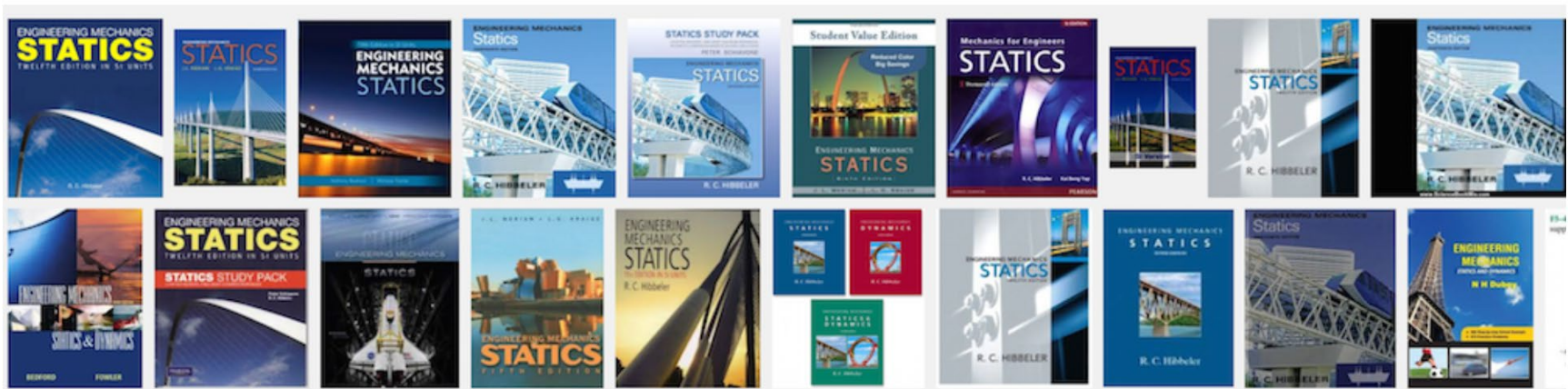
[Home](#) | [Policies](#) | [Info](#) | [People](#) | [Schedule](#) | [References](#)

Welcome to the official course website for TAM 210/11 at UIUC this Spring 2019.

NOTE: This website is always under construction!! Feel free to peruse, wander, and learn a bit about what's coming up this Spring, but dates/times/assignments etc. are subject to change. If you have any questions, feel free to drop us a line at the discussion forum on Piazza (see link below).

As well as the pages on this website, this course uses:

- Online homework via [PrairieLearn](#)
- Discussion forum on [Piazza](#)
- Gradebook on [Compass](#)
- Computerized Testing Facility [exam reservation](#)
- Computerized Testing Facility [instructions](#)



Course Policies

POLICIES PAGE - <https://courses.engr.illinois.edu/tam210/policies.html>

Please read through are the course policies for this class on the course website and familiarize yourself with the policies regarding course logistics. Details specific to course content can be found on the Info page.

- Absences
- Academic integrity, harassment, and discrimination
- Computer-Based Testing Facility
- Contact and obtaining help
- Discussion
- Gradebook
- Lectures
- Special accommodations

Grade Distribution

INFO PAGE - <https://courses.engr.illinois.edu/tam210/info.html>

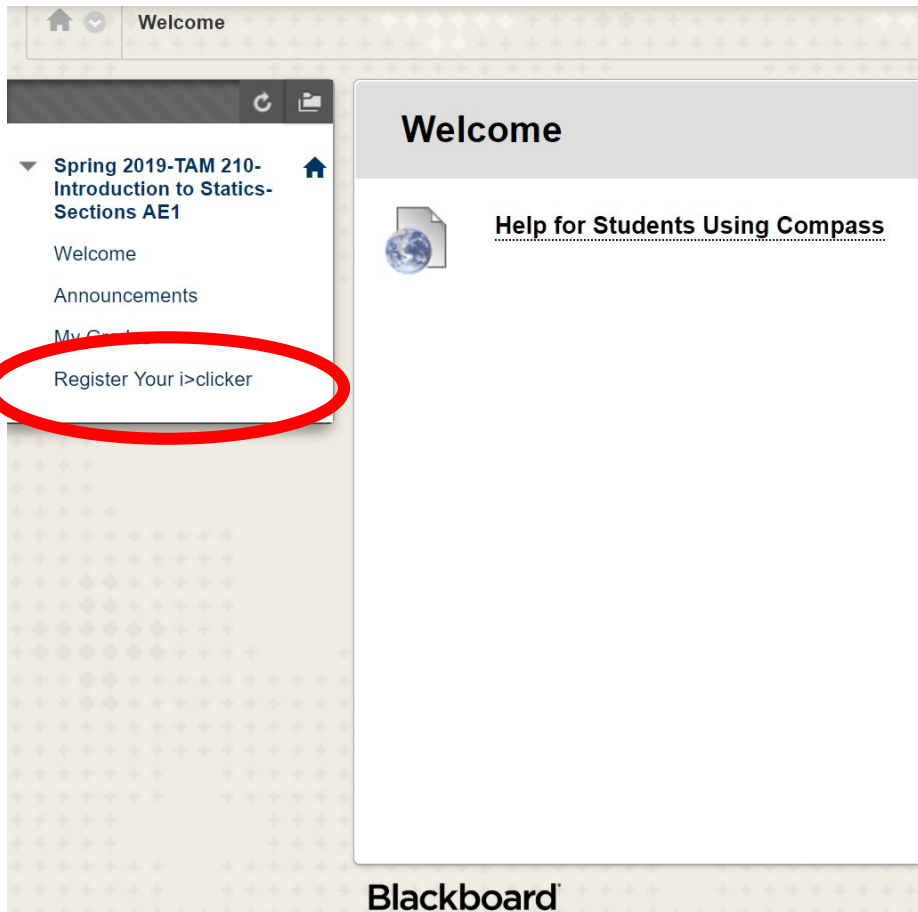
In-lecture iClickers	4%	Written assignments	8%
Discussion group activity	8%	CBTF quizzes	40%
PrairieLearn homework	10%	CBTF Exam	30%

Final grades: The total score s corresponds to final grades as follows.

$97\% \leq s < 100\%$	A+	$92\% \leq s < 97\%$	A	$89\% \leq s < 92\%$	A-
$86\% \leq s < 89\%$	B+	$82\% \leq s < 86\%$	B	$79\% \leq s < 82\%$	B-
$76\% \leq s < 79\%$	C+	$72\% \leq s < 76\%$	C	$69\% \leq s < 72\%$	C-
$66\% \leq s < 69\%$	D+	$60\% \leq s < 66\%$	D	$55\% \leq s < 60\%$	D-
$s < 55\%$	F				

I-Clickers – 4%

- Used for in-class participation
- 4.5% total possible (extra credit!)
- You need to register your i>clicker on **Compass 2g**



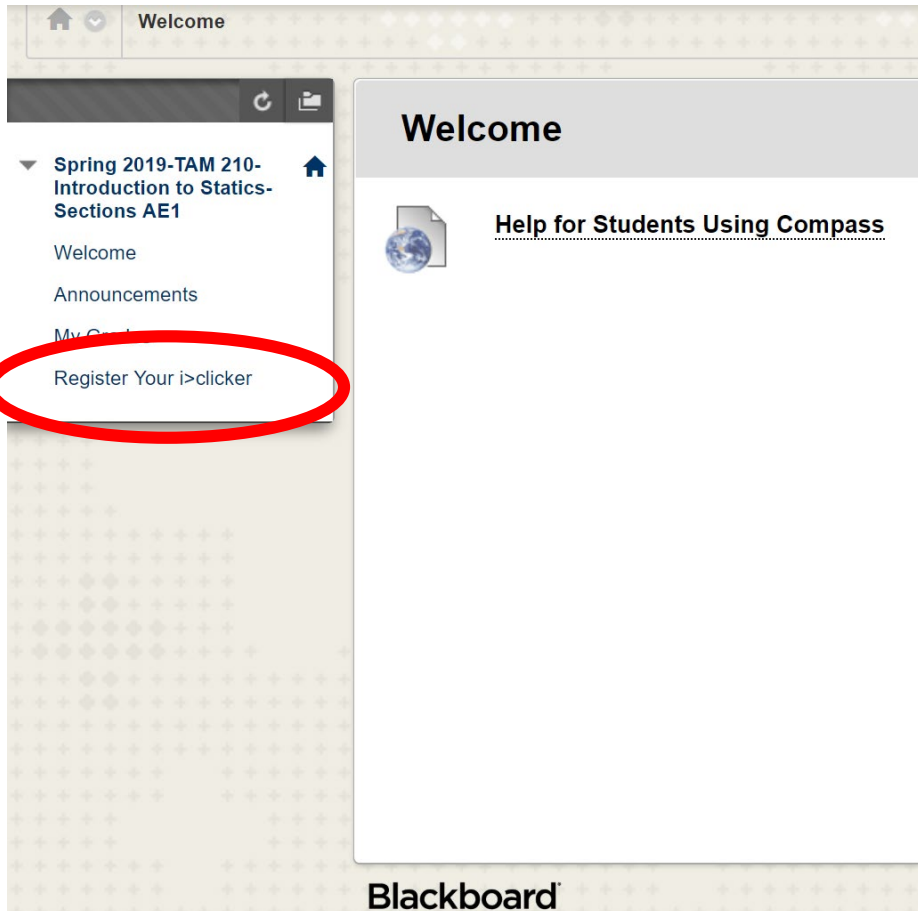
“Make Clickers Work for You”
Dr. Stephanie Chasteen (CU-Boulder)

Getting the most out of lectures:

- Bring paper and pencil/pen
- Participate
 - Ask questions
 - Answer questions
 - Give feedback (too fast, too soft)

I-Clickers – 4%

- Used for in-class participation
- 4.5% total possible (extra credit!)
- You need to register your i>clicker on **Compass 2g**



“Make Clickers Work for You”
Dr. Stephanie Chasteen (CU-Boulder)

Getting the most out of lectures:

- Bring paper and pencil/pen
- Participate
 - Ask questions
 - Answer questions
 - Give feedback (too fast, too soft)

The Impact of Mobile Phone Usage on Student Learning

Jeffrey H. Kuznekoff & Scott Titsworth

In this study, we examined the impact of mobile phone usage, during class lecture, on student learning. Participants in three different study groups (control, low-distraction, and high-distraction) watched a video lecture, took notes on that lecture, and took two learning assessments after watching the lecture. Students who were not using their mobile phones wrote down 62% more information in their notes, took more detailed notes, were able to recall more detailed information from the lecture, and scored a full letter grade and a half higher on a multiple choice test than those students who were actively using their mobile phones. Theoretical and pedagogical implications are discussed.

Keywords: Texting; Student Learning; Texting in the Classroom; Technology; Mobile Phone

Discussion group activity – 8%

- Work in groups of 3-4 students
- Groups will be determined by CATME
- Goals:
 - **Gain experience in team-work**
 - **Apply engineering concepts learned in lecture to real-world problems or hands-on activities**
- **Be prompt: if you are more than 5 minutes late, you will receive a 0 ☹️**
- You need to attend the discussion in which you are registered, otherwise, your assignment will not be graded



dubishere.com

Written Assignments – 8%


- Student will submit an **individual written report using compass**
- Goal:
 - **Practice the communication of engineering concepts in writing**
 - More info during discussion section this week (Week 1)


Home Welcome

Spring 2019-TAM 210-Introduction to Statics-Sections AE1

- Welcome
- Announcements
- My Grades
- Register Your i>clicker

Welcome

 [Help for Students Using Compass](#)

 [Written Assignment 1](#)

Blackboard
© 1997-2019 Blackboard Inc. All Rights Reserved. U.S. Patent No. 7,493,396 and 7,558,853. Additional Patents Pending.
[Accessibility information](#) [Installation details](#)

Online Homework (PL) – 10%

- Instant feedback
- Infinite number of attempts
- Multiple attempts may be required for full credit

PrairieLearn

An online system for problem-driven learning.

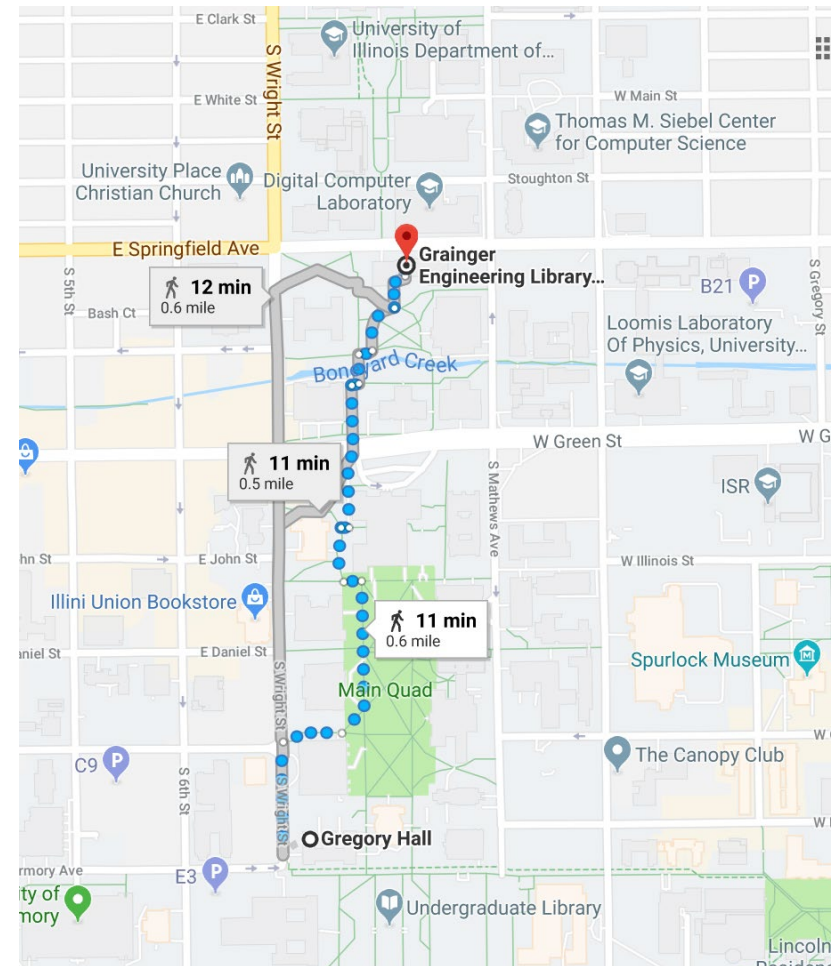
[University of Illinois login](#)

[Google login](#)

Quizzes – 40%

Exam – 30%

- Assess your understanding of the material in real time
- Check schedule webpage for dates (available over multiple days)
- Sign up for a quiz time online via CBTF website
- Slots fill up fast (CBTF is shared by many course), so sign up early!
- No personal calculators
- Quiz re-tries available to improve quiz grades
- Conflict/make-up quiz will be the re-try quiz



Quiz Grade Formula: $\max([\text{First Try}, 1/3 * (\text{First Try}) + 2/3 * (\text{Quiz Retry})])$

Grade Dispute

Grades: on Compass2g

- Any errors in grade reporting on Compass **must be reported within 2 weeks** of the due date or by the last day of class, whichever is earlier.
- Missing grade for discussion section, contact one of the TAs in your section (personally or via Piazza).
- Missing grade from online homework, an exam, or i>clicker, contact the course staff team (via Piazza).

TAM 210/211 Staff Team

PEOPLE PAGE - <https://courses.engr.illinois.edu/tam210/people.html>

Support for Students

- Office hours (429 Grainger) throughout the week
 - Check the Course Info webpage for details
- MATLAB clinic
 - Wednesday – Friday (1/16-18), 6-8PM, MEL
(Check Piazza for location announcement)
- Course website has a MATLAB help document
- Piazza (everyday, reasonable working hours)

Course Communications

Piazza: <https://piazza.com/class/jqhku2y12yq63b>

ALL communication in the course will be via piazza

- Open discussion of questions from class: if there's something you don't understand, chances are other people don't, and someone else may have the answer.
- Regularly checked by instructors, TAs and CAs.

The screenshot shows the Piazza interface for the TAM 210/211 course. The top navigation bar includes 'Piazza', 'TAM 210/ TAM 211', 'Q & A', 'Resources', 'Statistics', and 'Manage Class'. The user 'Gabriel Juarez' is logged in. The main content area displays a 'note' titled 'Introductory Matlab Office Hour/Clinic this Friday' with 159 views. The note text reads: 'Hi everyone - As part of the TAM sequence, we are strongly encouraging students to become comfortable using Matlab to solve mechanics problems. However, we know that some students enter the TAM sequence with limited exposure to using Matlab for engineering (or none at all), so we have arranged an informal clinic/office hour for Matlab this Friday (1/22) in 1001 MEL between 9am and 5pm. TAs from all three TAM 2XX courses will be there throughout this time period to answer questions and help you become acquainted with using Matlab. If you have other questions about Matlab (e.g., downloading from WebStore), you can always post them on Piazza as well!' The note is pinned and has an 'edit' button and a 'good note' badge. The left sidebar shows a list of pinned posts, including 'Written Assignment 1 Posted', 'Introductory Matlab Office H...', 'Mastering Engineering Course ID', 'Welcome to TAM 210/211', and 'Search for Teammates!'. The bottom of the page features a 'followup discussions' section with a 'Start a new followup discussion' button.

Course Schedule

SCHEDULE PAGE - <https://courses.engr.illinois.edu/tam210/sched.html>

Week	Day	Date	Class	Reference Material	CBTF Quiz (Subject to Changes)	Discussion Sections	Homework Due	Written Assignment
1	M	Jan 14	Lecture 1 Introduction and general principles	Chapter 1	Quiz 0 (practice) in PrairieLearn	Discussion Introduction	PL Guide	
	W	Jan 16	Lecture 2 Force vectors - Cartesian and unit vectors	Chapter 2 Vectors help 1 Vectors help 2				
	F	Jan 18	Lecture 3 Position vectors, Force along line	Chapter 2				
2	M	Jan 21	M. L. K. Day - No Class		Quiz 1	Worksheet 2 Solution	PL HW 1 due Tuesday	
	W	Jan 23	Lecture 4 Dot product; Projections; Cross product	Chapter 2 Chapter 4 (cross product) Cross product help				
	F	Jan 25	Lecture 5 Equilibrium of particle; FBD	Chapter 3 Video 1 Video 2				

Paths to Success



Chegg[®]

**TAM
Student**

**TAM
Staff**

A Big Obstacle: Procrastination

How I get “motivated” to study?

From Alex Vermeer, “How to Generally Reduce Procrastination”

$$\text{Motivation} = \frac{\text{Expectancy} \times \text{Value}}{\text{Impulsiveness} \times \text{Delay}}$$

Accounts for every major finding on procrastination, and draws upon our best current theories of motivation.

Reward (*Expectancy X Value*) +

Decrease the **certainty** or the **size** of a task's reward - its expectancy or its value - and you are unlikely to pursue its completion with any vigor.

Time (*Impulsiveness X Delay*) +

Increase the **delay** for the task's reward and our susceptibility to delay - **impulsiveness** - and motivation dips.

Expectancy: perceived *odds* of getting the reward; how much success/failure is expected.

Value: the pleasantness of *doing* the task, and the size of the reward.

Impulsiveness: the tendency to get distracted by more urgent or interesting things, and the tendency to lose focus on the current task.

Delay: the time between the present and the task's reward.

Helping You Battle Procrastination

- Same quiz/exam format as homework (PrairieLearn)
- Low-stake assessment

Participation/effort grades

$$Motivation = \frac{Expectancy \times Value}{Impulsiveness \times Delay}$$

Regularly scheduled:

- i-Clicker
- Homework
- Written Assignment
- Discussion Section
- Quizzes



Student Outcomes (Value)

ABET

- (a) an ability to **apply knowledge** of mathematics, science, and engineering
- (b) an ability to **design and conduct** experiments, as well as to **analyze and interpret** data
- (c) an ability to design a system, component, or process to **meet desired needs** within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) an ability to function on multidisciplinary **teams**
- (e) an ability to **identify, formulate, and solve** engineering problems
- (f) an understanding of professional and **ethical responsibility**
- (g) an ability to **communicate** effectively
- (h) the broad education necessary to **understand the impact** of engineering solutions in a global, economic, environmental, and societal context
- (i) a recognition of the need for, and an ability to engage in **life-long learning**
- (j) a knowledge of **contemporary issues**
- (k) an ability to use the techniques, skills, and **modern engineering tools** necessary for engineering practice.



Student Outcomes for TAM 210/211

ABET

(a) an ability to apply knowledge of mathematics, science, and engineering

- Avoid example problems memorization
- No PrairieLearn homework/quiz/exam solutions posted

(d) an ability to function on multidisciplinary teams

- Comprehensive Assessment of Team Member Effectiveness (CATME) to promote smarter team work (<https://info.catme.org>)

(g) an ability to communicate effectively

- Written assignment and corresponding peer evaluations

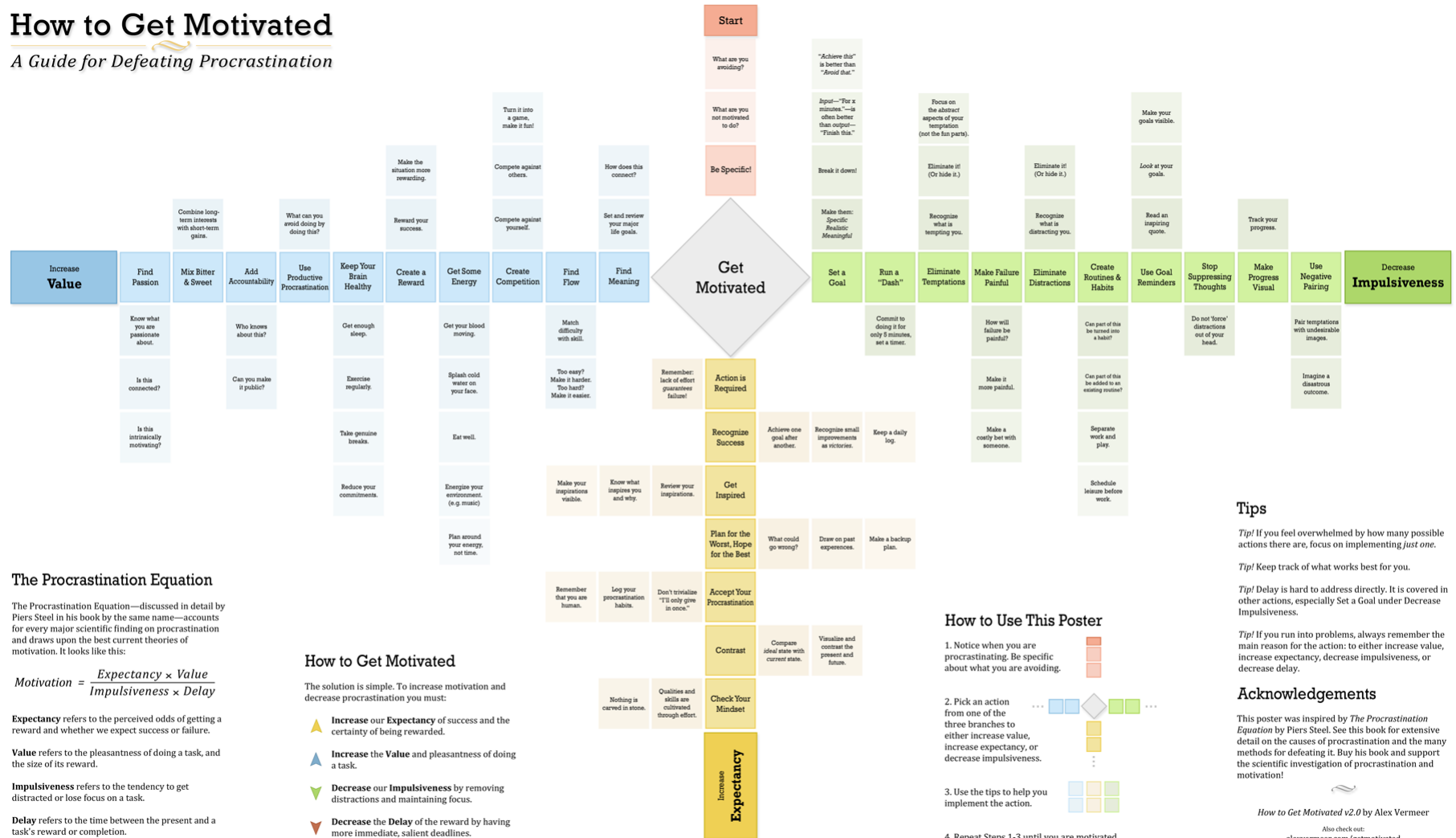
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

- Use of computational program (MATLAB)

Getting Motivated

How to Get Motivated

A Guide for Defeating Procrastination



The Procrastination Equation

The Procrastination Equation—discussed in detail by Piers Steel in his book by the same name—accounts for every major scientific finding on procrastination and draws upon the best current theories of motivation. It looks like this:

$$\text{Motivation} = \frac{\text{Expectancy} \times \text{Value}}{\text{Impulsiveness} \times \text{Delay}}$$

Expectancy refers to the perceived odds of getting a reward and whether we expect success or failure.

Value refers to the pleasantness of doing a task, and the size of its reward.

Impulsiveness refers to the tendency to get distracted or lose focus on a task.

Delay refers to the time between the present and a task's reward or completion.

How to Get Motivated

The solution is simple. To increase motivation and decrease procrastination you must:

- ▲ **Increase our Expectancy** of success and the certainty of being rewarded.
- ▲ **Increase the Value** and pleasantness of doing a task.
- ▼ **Decrease our Impulsiveness** by removing distractions and maintaining focus.
- ▼ **Decrease the Delay** of the reward by having more immediate, salient deadlines.

Tips

Tip! If you feel overwhelmed by how many possible actions there are, focus on implementing *just one*.

Tip! Keep track of what works best for you.

Tip! Delay is hard to address directly. It is covered in other actions, especially Set a Goal under Decrease Impulsiveness.

Tip! If you run into problems, always remember the main reason for the action: to either increase value, increase expectancy, decrease impulsiveness, or decrease delay.

Acknowledgements

This poster was inspired by *The Procrastination Equation* by Piers Steel. See this book for extensive detail on the causes of procrastination and the many methods for defeating it. Buy his book and support the scientific investigation of procrastination and motivation!

How to Get Motivated v2.0 by Alex Vermeer
Also check out: alexvermeer.com/getmotivated

FAQ

- *I spend a lot of hours studying but I'm still failing the class, what do I do?*

Answer: Try working through lecture examples on your own before homework.

Avoid getting answers right away when you get stuck.

Practice solving more problems from reserved textbooks in library.

- *I swear I know what I'm doing, it's not fair to not get any credit for my work in a quiz/exam. I paid a lot of money to get the grades that I deserve.*

Answer: All students are evaluated the same way through standardized assessments, and all test questions are designed to test specific concepts. Being able to arrive at the correct final answer with opportunities for multiple attempts is part of the expectation.

- *I'm a TAM 210 student, will the zeros I see on Compass for TAM 211 assignments affect my grades?*

Answer: Worry not! Even though 210 and 211 students share the same Compass space, only 210 assignments will be used for 210 grade calculation.

FAQ

- *Will the quiz/exam/class be “curved”?*

Answer: The quiz/exam/course grades are standardized with very little variations from semester to semester, no “curve” is necessary.

- *But the class average is 60%, does this mean everyone is failing?*

Answer: With full points received for non-assessment assignments, 60% assessment average gives

$$100\% * (30 \text{ points}) + 60\% * (70 \text{ points}) = 72 \text{ final points (Grade: C)}$$

Homework, written assignment,
i-clicker, discussion worksheet

Quizzes and exam

Historically, about 60% of the students get B- or better.

- *My final grade is 0.1% from the next grade, is there anything I can do to make up those points?*

Answer: There are no end-of-semester grade adjustment. As stated in the course website: “a score of 78.9% is a C+, while 79.0% is a B-.”

Note to self now: Don’t lose points on the little things early on.

Ground Rule – Respect

