Diversity, Equity, and Inclusion Tools for Teamwork: Asset Mapping and Team Processing Handbook

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Worcester Polytechnic Institute
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(Jayeesh/Getty Images)

Note:

The materials in this packet are constantly under revision as we learn more about the needs of our students, and more about how to foster equity and inclusion on student teams. Some faculty at WPI who use module 3 in their classes include an hour-long discussion, based on the assigned readings, on implicit bias, how it plays out on teams, and the impact on learning and productivity. This additional piece was time prohibitive for some faculty, and others felt unprepared to discuss issues of bias and stereotyping. We continue to test versions of these module for effectiveness and for adaptability and are always seeking feedback. You can find a version of this additional piece in the chapter noted below.

To cite the packet or material within this packet, please use the following:

Pfeifer, Geoffrey and Elisabeth A. Stoddard (2020). "Equitable and Effective Teams: Creating and Managing Team Dynamics for Equitable Learning Outcomes" in Kristin Wobbe and Elisabeth A. Stoddard, eds. Beyond All Expectations: Project-Based Learning in the First Year

Additional Published Data to Support this Material

Pfeifer, Geoffrey and Elisabeth A. Stoddard. 2019. Equitable and Effective Student Teams: Creating and Managing Team Dynamics for Equitable Learning Outcomes. In Wobbe, Kristin and Elisabeth A. Stoddard (co-editors) Project-Based Learning in the First Year: Beyond All Expectations, Stylus Publishers.

Stoddard, Elisabeth A. and Geoffrey Pfeifer. 2018. "Working Towards More Equitable Team Dynamics: Mapping Student Assets to Minimize Stereotyping and Task Assignment Bias" American Society for Engineering Education Peer. https://www.asee.org/public/conferences/113/papers/22206/view

Feel free to contact the authors with questions, thoughts, or concerns

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SWEET: Supporting WPI in Equitable and Effective Teamwork

Created for the Great Problem Seminar Program at Worcester Polytechnic Institute.
Workshops, testing, and broader implementation support funded by the Davis Educational Foundation.

Equitable and Effective Teamwork Tools

The following tools have been developed, tested, and revised since 2016 with the support of WPI students, faculty, and staff, as well as through collaborations with our university partners . They will continue to be tested, critiqued, and revised based on research and input from partners and users. *The goal for the tools individually and collectively is* to create the context and culture for more equitable and effective teamwork in and out of the classroom, to be carried over into the workplace and civic life. If student grades and academic success is dependent upon collaboration with their peers, then it is imperative that we address bias and stereotyping that impacts student learning, and teach our students to work more equitably and effectively with one another.

The tools aim to achieve this goal through a set of objectives: **1) Better understand problems of bias and stereotyping on teams** and the impact on learning. **2) Help students on a team get to know each other and overcome stereotypes** to work more effectively and equitably with one another. **3) Reduce task assignment bias**, or when student's assign themselves or others tasks based on unconscious biases of who is more or less capable/suited for specific tasks (Meadows et al, 2015). **4) Improve student confidence** in themselves and in their teammates of what they individually and collectively have to offer on a team project. **5) Create opportunities for students to grow and develop new assets**, or strengths, through team projects (Stoddard and Pfeifer, 2018; Pfeifer and Stoddard, 2019).

Click on each tool below to find a description of what the tool is, and when and how to use it.

Tool: Readings, Self-Assessment, and Reflection- before project begins	Tool: Asset-based Assignment Plan	Tool: Reading and Reflection - upon end of short (1-3 week) projects
Tool: Asset Map	Tool: Team Contract Short OR Long	Tool: Reading and Reflection - Midway through longer (4+ week) projects

Tool: Team Asset Chart	Tool: Team Processing Sheet	Tool: Rotating Manager of the Assignment

Equitable and Effective Teamwork - Sample Modules:

Short Team Project: 1-3 weeks	Longer Team Project: 4+ weeks (not IQP)

IQP Module: ID2050 + Project Term

Equitable and Effective Teamwork - Workshop Slides:

- Stoddard and Pfeifer, 2019, "Bias and Stereotyping on Teams Session #1: Asset Mapping Tools for More Equitable and Effective Teamwork". WPI Workshop, August 2019.
- Stoddard and Pfeifer, 2019, "Bias and Stereotyping on Teams Session #2: Additional Tools for More Equitable and Effective Teamwork". WPI Workshop, August 2019.

References

Meadows, L. A., D. Sekaquaptewa, M.C. Paretti, and A. Pawley, 2015. Interactive panel: Improving the experiences of marginalized students on engineering design teams. In *122nd ASEE Annual Conference and Exposition: Making Value for Society* American Society for Engineering Education.
Stoddard, Elisabeth; G Pfeifer. 2018. Working Toward More Equitable Team Dynamics: Mapping Student Assets to Minimize Stereotyping and Task Assignment Bias. ASEE Paper ID 22206.

Pfeifer, Geoffrey and Elisabeth A. Stoddard. 2019. Equitable and Effective Student Teams: Creating and Managing Team Dynamics for Equitable Learning Outcomes. In Wobbe, Kristin and Elisabeth A. Stoddard (co-editors) Project-Based Learning in the First Year: Beyond All Expectations, Stylus Publishers.

Stoddard, Elisabeth A. and Geoffrey Pfeifer. 2018. “Working Towards More Equitable Team Dynamics: Mapping Student Assets to Minimize Stereotyping and Task Assignment Bias” American Society for Engineering Education Peer.

Tool: Readings, Self-Assessments, and Reflection - Before the Project Begins

SWEET: Supporting WPI in Equitable and Effective Teamwork

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Tool Introduction

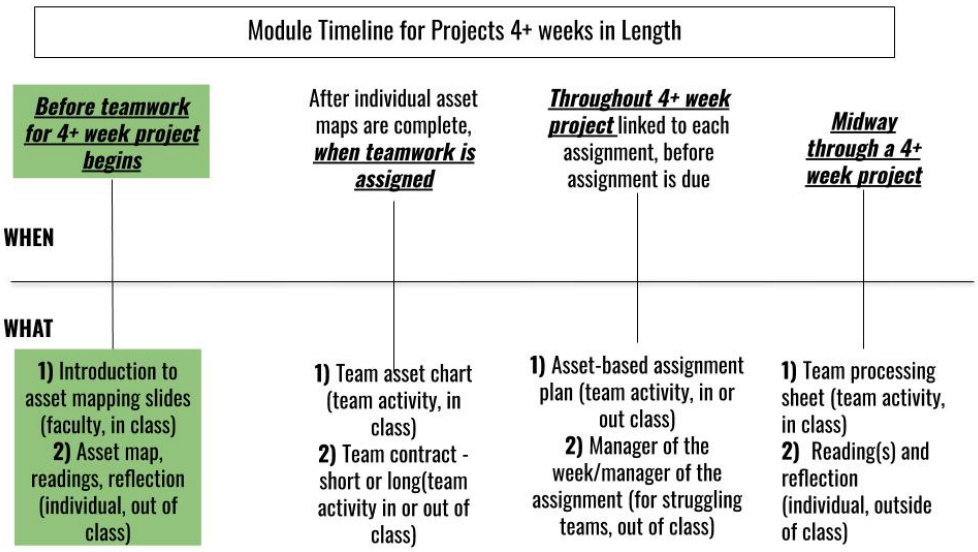
This tool is recommended for longer (4+ week) projects. These readings, self-assessments, and reflection aim to prepare students for teamwork by showing them evidence, examples, and first hand accounts of the benefits and challenges of teams with cognitive and identity diversity, and by having them assess and reflect upon the ways in which they tend to operate on teams.

What

1. *A set of three, 1-2 page readings* that help students learn about the benefits and challenges of cognitive and identity diversity on teams; the value of diversity in projects for reducing bias in research and for providing different ways to look at the world; and offers powerful examples and first hand accounts that make these points come alive. Below is a *brief description of the aims of each article*.
    - Folk-Williams, John. 2010. "How Diversity Improves Collaborative Problem Solving", Cross Collaborate. May 20.
        - 1-2 pages; easy read. *Article Summary and Why we Assign.*
    - Medin, Douglas, Carol Lee, and Megan Bang. 2014. "Point of View Affects How Science is Done", Scientific American.
        - 1-2 pages; easy read. *Article Summary and Why we Assign.*
    - Hill, Stephanie C. 2014. "When I learned the Value of Diversity for Innovation", Scientific American. October 1.
        - *1-2 pages; easy read. Article Summary and Why we Assign.*
2. *A set of self-assessments,*  created by Johanna Wolfe (2010) and Stephen Dent (2002), that help students consider how they tend to communicate, interact, and manage conflict on teams.
3. A 1-2 page reflection that asks students to reflect on past team experiences, goals for new experiences, as well as what they have to offer on a team.

When

We recommend assigning this along with the asset mapping tool before the teamwork begins. In the "how" below, there is a sample assignment that combines this and the asset mapping activity, as well as a sample assignment without the asset mapping activity included.



How

1. Here is a sample assignment that brings together the readings, self-assessment, reflection questions, along with the asset mapping exercise.
2. Sample Slides to Introduce Asset Mapping to Class.
3. The modules on the home page show how the tools can be combined with others to create more comprehensive units that foster equitable and effective teamwork.

Where

Students can complete outside of class

How long will this take my students?

- Readings: 3 readings, 1-2 pages each, max total one hour
- 5 Assessments: 45-60 minutes
- 1-2 page reflection: ~1 hour
- Asset map (recommended to assign at same time): ~1 hour

References

Dent, Stephen, 2002. "What is your Conflict Resolution Style?". *The CEO Refresher...brain food for business!* Refresher Publications Inc.

Folk-Williams, John. 2010. “How Diversity Improves Collaborative Problem Solving”, Cross Collaborate. May 20.

Hill, Stephanie C. 2014. “When I learned the Value of Diversity for Innovation”, Scientific American. October 1.

Medin, Douglas, Carol Lee, and Megan Bang. 2014. “Point of View Affects How Science is Done”, Scientific American.

Wolfe, J. (2010). *Team writing: a guide to working in groups*. Boston: Bedford/St. Martins

Tool: Asset Map

SWEET: Supporting WPI in Equitable and Effective Teamwork

Created for the Great Problem Seminar Program at Worcester Polytechnic Institute. Workshops, testing, and broader implementation support funded by the Davis Educational Foundation.

Tool Introduction

This tool is recommended for all projects, shorter (1-3 weeks) or longer (4+ weeks). Asset mapping is the practice of self-identifying the strengths within an individual or group that they bring to a classroom, project, or other context. A focus on assets or strengths is in opposition to deficit models, which look at areas of weakness or of lacking within an individual or group that need to be corrected. "Asset-based teaching seeks to unlock students' potential by focusing on their talents. Also known as strengths-based teaching, this approach contrasts with the more common deficit-based style of teaching which highlights students' inadequacies." (Association of College & Research Libraries, 2018).

An asset versus deficit focus became popular in community development (Kretzman and McKnight, 1993; Garoutte and McCarthy-Gilmore, 2014) and in education (Yosso, 2005; Ladson-Billings, 2006) in the 1990s. Gloria-Ladson Billings groundbreaking work (1995) on Culturally Relevant Pedagogy was critical in a movement to shift from deficit models towards an asset-based approach to education. Educators have found that focusing on assets, and utilizing student assets to structure learning and promote growth is more effective than deficit approaches to teaching and learning (New York University, 2018). Deficit models have also been critiqued for not considering gendered, raced, and classed experiences as sources of strength, including the cultural knowledge, skills, abilities, experiences, contacts, values, and cultures that provide students with unique assets, particularly in a university setting (Smith-Maddox and Solórzano, 2002; Casey, 2005; Yosso, 2005; Lehmann, 2009; Ladson-Billings, 2014)

We use asset mapping to: 1) learn about our own students and the strengths they bring to our classrooms and other contexts; 2) to have our students reflect upon their assets and what they bring to a course or other context; and 3) to have our students get to know each other and learn about the strengths that each person brings to the team, lab, or project. We also have students list three areas they would like to grow in during the project or class. This is beneficial as it: 1) helps us to understand the interests and goals of our students; 2) for students to consider and reflect on how they want to grow in the class; and 3) for team members to learn about one another, members' goals, and to better prepare them to support one another.

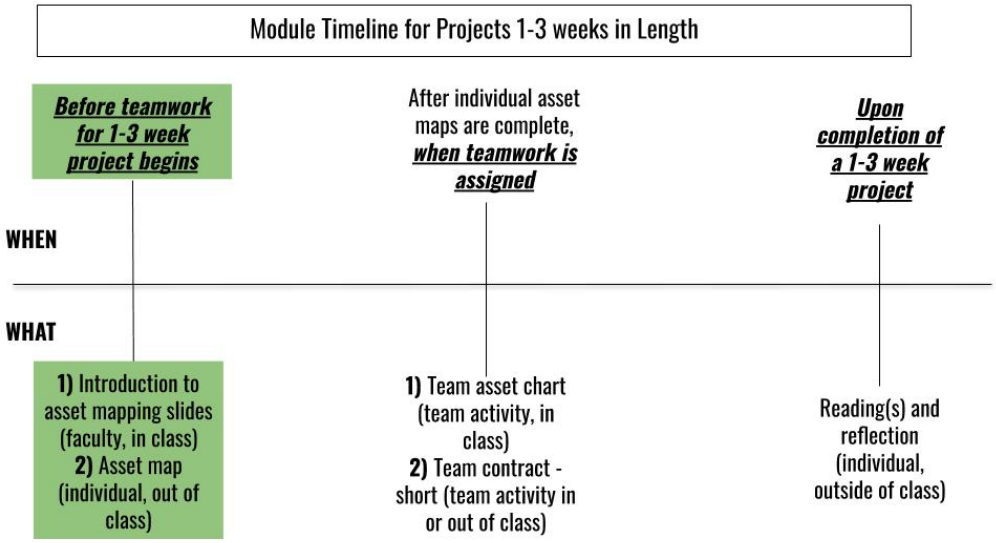
The benefits of students mapping their assets and discussing desired areas for growth, sharing their assets with team members, and utilizing members assets and desired areas of growth to direct how team work is divided and managed includes 1) increasing student confidence, 2) helping students get to know each other and overcome stereotypes, and 3) reducing task assignment bias (Stoddard and Pfeifer, 2018).

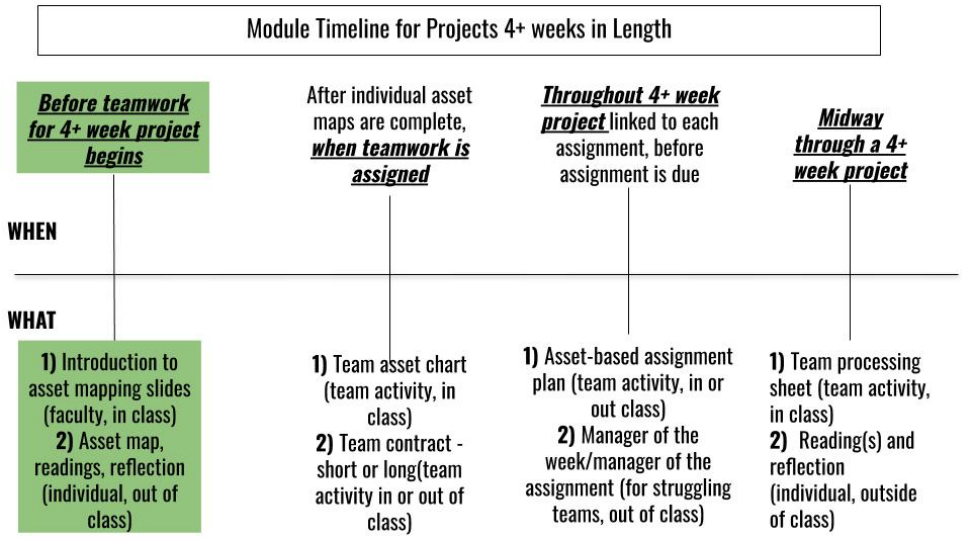
What

A blank asset map for students to fill out, with instructions, an example, as well as a space for students to note what areas they want to grow in and why.

When

We recommend assigning this before the teamwork begins, along with the Tool: Readings, Self-Assessments, and Reflection - Before the Project Begins. In the "how" below, there is a sample asset mapping assignment, as well as an that combines the asset mapping activity with the readings, self-assessment, and reflection assignment.





How

1. Here is a stand alone asset mapping assignment.
2. Here is a sample assignment that brings together the readings, self-assessment, reflection questions, along with the asset mapping exercise.
3. Sample Slides to Introduce Asset Mapping to Class.
4. The modules on the home page show how the tools can be combined with others to create more comprehensive units that foster equitable and effective teamwork.

Where

Students can complete outside of class

How long will this take my students?

- Asset map: 1 hour
- We recommend assigning the readings, self-assessment, and reflection assignment at the same time. Readings: 3 readings, 1-2 pages each, max total one hour. 5 Assessments: 45-60 minutes. 1-2 page reflection: 1-2 hours

Student Feedback

"Through creating my asset map, I surprised myself with what I may be able to offer in a team project, specifically in this course...I often feel intimidated by the intelligence of the people around me, as I believe I may not have as much to offer with experience or general knowledge. I may not be the smartest, and I'm not a great writer, but what I lack in these areas I may make up for in creativity, and I have many interests that directly correspond with this course".

References

Casey, J. G. (2005). Diversity, discourse, and the working-class student. *Academe*, *91*(4), 33.

Garoutte, L., & McCarthy-Gilmore, K. (2014). Preparing students for community-based learning using an asset-based approach. Journal of the Scholarship of Teaching and Learning, 14(5), 48-61.

Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. American educational research journal, 32(3), 465-491.

Ladson-Billings, G. (2006). It's not the culture of poverty, it's the poverty of culture: The problem with teacher education. *Anthropology & Education Quarterly*, *37*(2), 104-109.

Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. American educational research journal, 32(3), 465-491.

Lehmann, W. (2009). Becoming middle class: How working-class university students draw and transgress moral class boundaries. *Sociology*, *43*(4), 631-647.

McKnight, J., & Kretzmann, J. (1993). Building communities from the inside out. *A path toward finding and mobilizing a community's assets*.

Smith-Maddox, Renée and Daniel G. Solórzano (2002). Using Critical Race Theory, Paulo Freire's Problem-Posing Method, and Case Study Research to Confront Race and Racism in Education. *Qualitative Inquiry*. Volume: 8 issue: 1, page(s): 66-84

Stoddard, Elisabeth; G Pfeifer. 2018. Working Toward More Equitable Team Dynamics: Mapping Student Assets to Minimize Stereotyping and Task Assignment Bias. ASEE Paper ID 22206.

Yosso*, T. J. (2005). Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race ethnicity and education*, *8*(1), 69-91.

Tool: Team Asset Chart

SWEET: Supporting WPI in Equitable and Effective Teamwork

Created for the Great Problem Seminar Program at Worcester Polytechnic Institute. Workshops, testing, and broader implementation support funded by the Davis Educational Foundation.

Tool Introduction

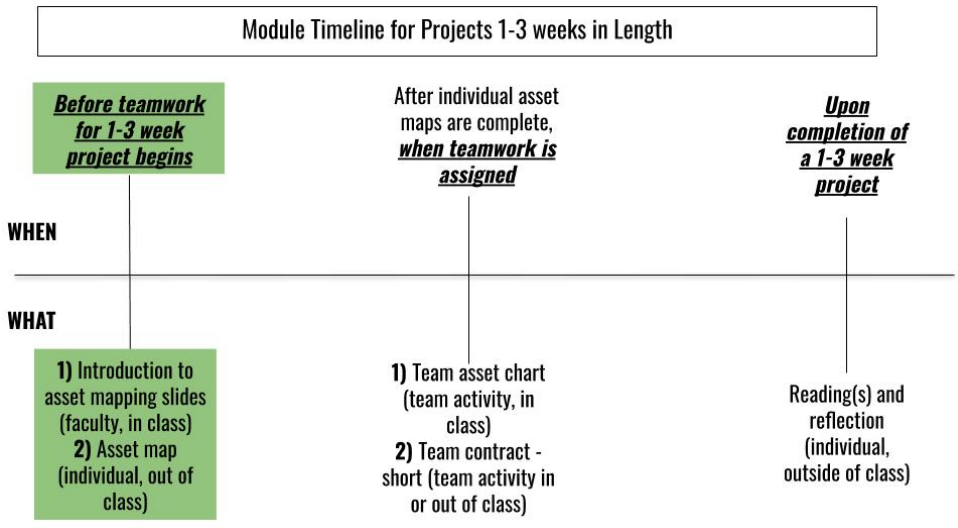
This tool is recommended for all projects, shorter (1-3 weeks) or longer (4+ weeks). We developed the team asset-chart tool to allow students to learn, visualize, and concretize how their individual assets and desired areas for growth can come together to tackle a project, problem, or other task most effectively and equitably. This differs from how teamwork is often managed and delegated. Sometimes team decisions are made by the loudest person or most dominant personality, which can lead to unequal learning opportunities, conflict, and a poorer project outcome (Stoddard and Pfeifer, 2018).

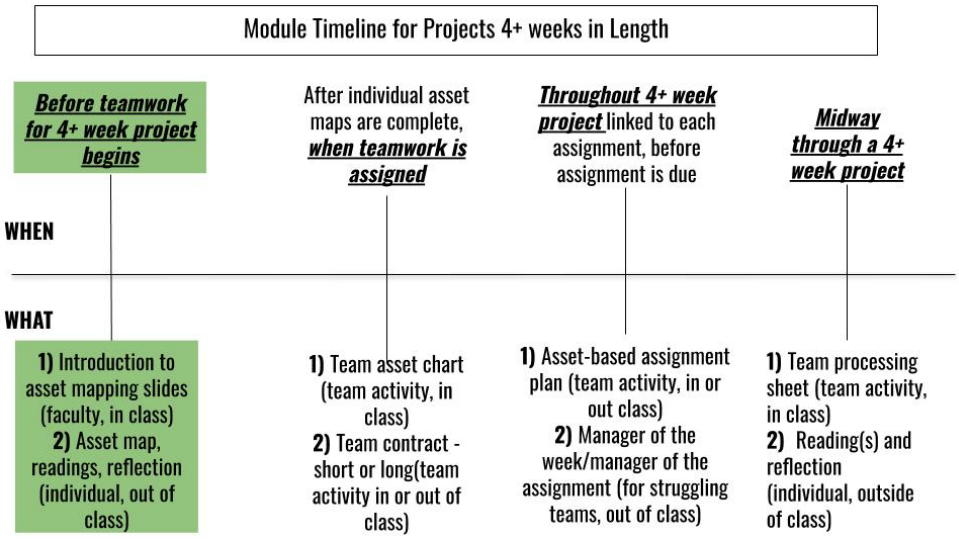
What

The team asset chart is a chart with 3 columns. The first column lists the skill and content areas needed for the project, assignment, lab, or other context. We recommend faculty fill out this first column. Dividing up a project into smaller tasks is a skill and can be difficult for students, and the goal of this assignment is to have them focus on dividing tasks based on assets and desired areas of growth. However, faculty can use their judgement about this. In, the second column, team members write their names and relevant assets next to skill and content areas in column one. In, the third column, team members write their names and desired area for growth adjacent to skill and content areas in column one.

When

We recommend assigning this to be completed during the first team meeting. We recommend having students complete this in class or in the presence of a project advisor to ensure that it is done collaboratively and to show it's importance.





How

Here is a team asset chart assignment.

Where

Students can complete or at least start this in class

How long will this take my students?

- 30 minutes
- Depending on how long column one (the list of tasks) is.

Student Feedback

“We try to use our different strengths to an advantage and build on our weaknesses as well. One example is during the interviews. We knew Josh was the best person for the job, but we all got to lead at least one of the interviews so we could gain experience. I also have a lot of experience in technical writing as I wrote up a 70 plus page portfolio for my engineering project last year. Therefore, I will be leading this aspect of the project. However, there will also be times where Josh and Rita get to lead in this area as well. We all want to make sure that our strengths are used appropriately and that we also get experience in other areas that we might not have had before”.

References

Stoddard, Elisabeth; G Pfeifer. 2018. Working Toward More Equitable Team Dynamics: Mapping Student Assets to Minimize Stereotyping and Task Assignment Bias. ASEE Paper ID 22206.

Tool: Asset-Based Assignment Plan

SWEET: Supporting WPI in Equitable and Effective Teamwork

Created for the Great Problem Seminar Program at Worcester Polytechnic Institute.
Workshops, testing, and broader implementation support funded by the Davis Educational Foundation.

Tool Introduction

This tool is recommended for longer (4+ week) projects. This is a tool helps students to divide up **weekly** team project assignments based on assets and areas for growth. These weekly project assignments (e.g. literature review) support and build towards the larger project end goal (design a rain-based potable household water system). This differs from the team-asset chart, which aims to help students learn about and visualize each members assets and desired areas for growth over the course of a large, long-term project.

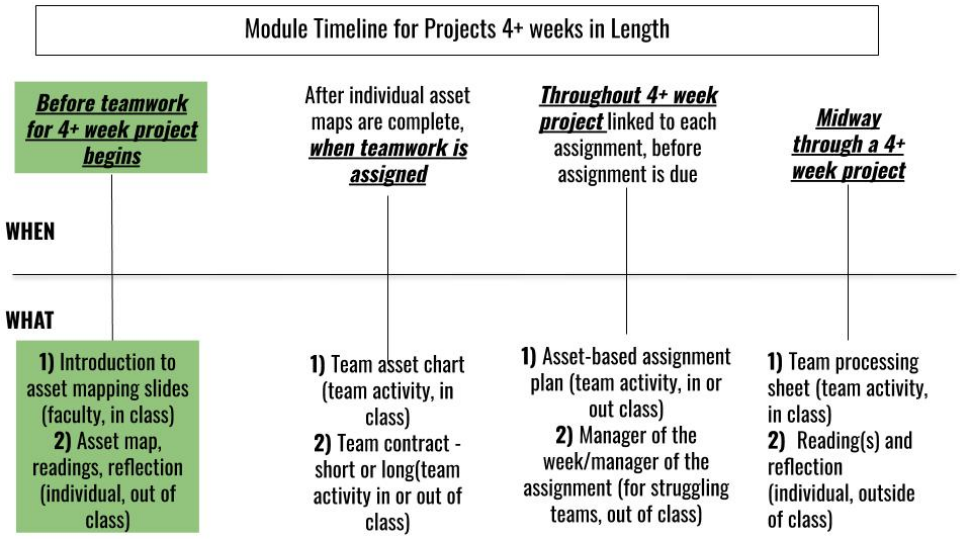
We developed this tool after getting feedback from our peer learning assistants, as well as our students, who said that students started off really well with the project after doing the team-asset chart. However, after a couple weeks into the project, the division of labor reverted back to who was loudest or most dominant. This serves a way for teams regularly divide up assignment work, something they need to do already, but this enables them to do so in a more thoughtful and equitable way.

What

The asset-based assignment plan is a chart with 3 columns. The first column lists the skill and content areas needed for the project, assignment, lab, or other context. Students or faculty can fill this column out. In, the second column, team members write their names and relevant assets next to skill and content areas in column one. In, the third column, team members write their names and desired area for growth adjacent to skill and content areas in column one.

When

- Throughout a long term (4+ weeks) team project that has multiple assignments due over the course of multiple weeks.
- Asset-Based Assignment Plan should be submitted by team several days before the due date. If students have a week to complete the assignment, have it due 3 days beforehand. Students will have had a chance to grapple with the assignment, and this assignment gives them an excuse to get together and get moving.



How

Here is an Asset-Based Assignment Plan Assignment

Where

Students can complete this inside or outside of class

How long will this take my students?

- 15 -20 minutes
- Can take more or less time, depending on whether the students or faculty fill out column one (the list of tasks).
- Can take more or less time, depending on how long column one (the list of tasks) is.

Student Feedback

“This forced us to sit down and thoughtfully divide up the work ahead of time for each assignment, instead of waiting for the last minute, which was annoying, but helpful”.

“Asset-based assignment plans caused me to know every time how much of the project I needed to finish by the due date”.

Tool: Team Contract - Short

SWEET: Supporting WPI in Equitable and Effective Teamwork

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Workshops, testing, and broader implementation support funded by the Davis Educational Foundation.

Tool Introduction

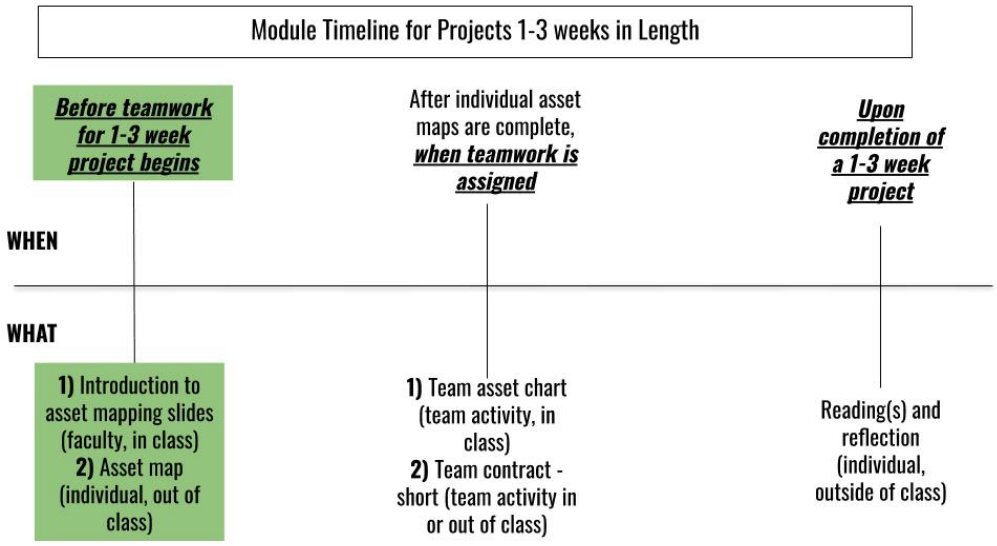
A short team contract is recommended for all projects, shorter (1-3 weeks) or longer (4+ weeks). This is a tool that helps students to come up with simple ground rules to help them function effective, equitably, and reduce conflict over communication and working styles.

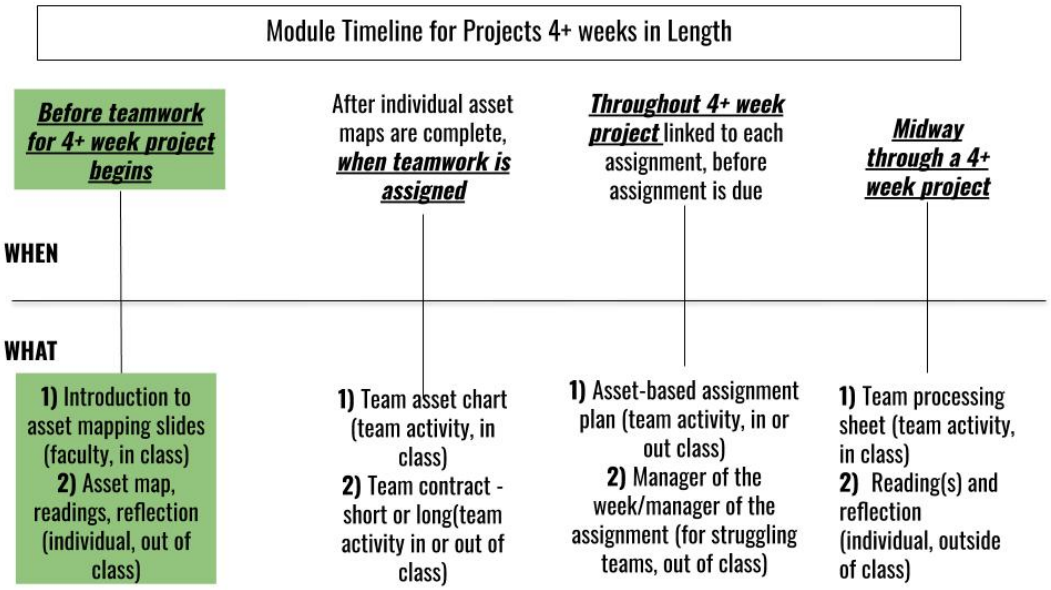
What

A team generated document that helps students think through and plan for 1) how and when they will communicate outside of class; 2) internal team deadlines (e.g. due 2am night before assignment due or due 2 days before assignment is due); 3) and rules for civility (e.g no interrupting).

When

- Assign at the start of the project, after teams have shared their asset maps and completed their team asset chart.
- For longer projects (4+ weeks), a team contract should be revised mid-way through the project, after teams use the Processing Sheet tool.





How

Here is the Short Team Contract assignment

Where

The team should complete this together either inside or outside of class

How long will this take my students?

About 30-45 minutes as a group.

Tool: Team Contract - Long

SWEET: Supporting WPI in Equitable and Effective Teamwork

Created for the Great Problem Seminar Program at Worcester Polytechnic Institute.
Workshops, testing, and broader implementation support funded by the Davis Educational Foundation.

Tool Introduction

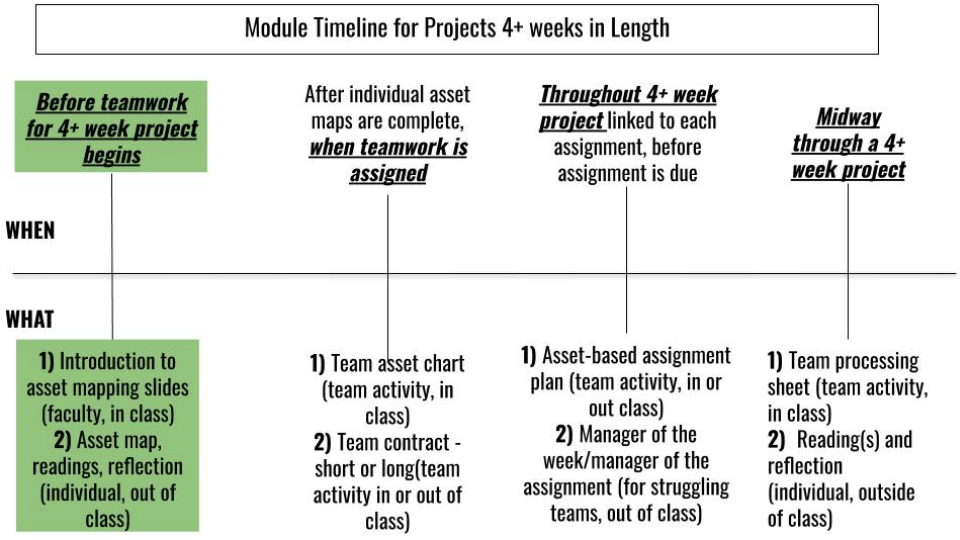
A long team contract is recommended for longer (4+ week) projects. This is a tool that helps students to come up with ground rules to help them function effective, equitably, and reduce conflict over communication and working styles.

What

A team generated document that helps students hold themselves and each other accountable, set up an effective and equitable working environment, think about scheduling, and agree on commitment levels.

When

- Assign at the start of the project.
- The team contract should be revised mid-way through the (4+ week) project, after teams use the Processing Sheet tool.



How

Here is the Long Team Contract Assignment

Where

The team should complete this together either inside or outside of class.

How long will this take my students?

About one hour as a group.

Tool: Team Processing Sheet

SWEET: Supporting WPI in Equitable and Effective Teamwork

Created for the Great Problem Seminar Program at Worcester Polytechnic Institute. Workshops, testing, and broader implementation support funded by the Davis Educational Foundation.

Tool Introduction

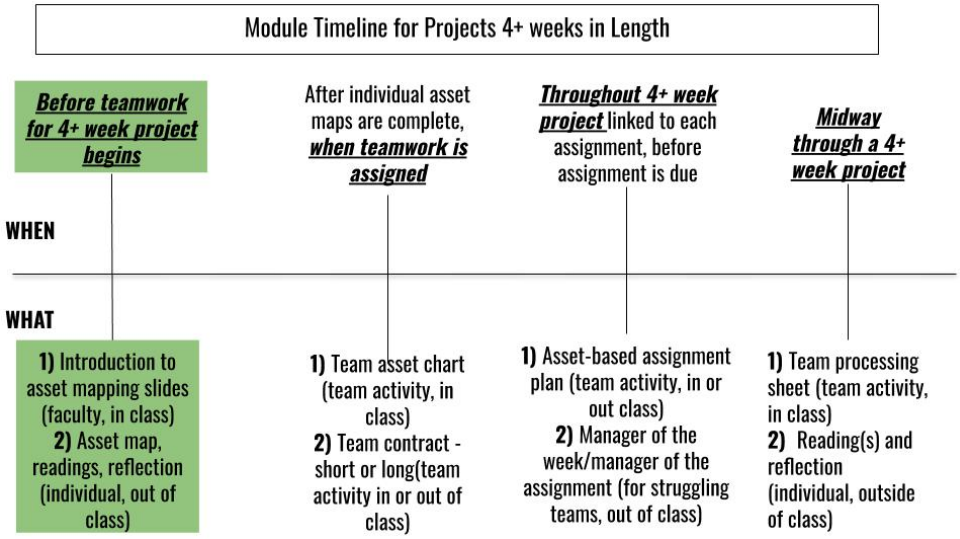
The processing sheet is recommended for longer (4+ weeks) projects. The processing sheet provides an opportunity for team members to evaluate what is working well, and what is not working well with their team dynamics. Questions, such as "who talks the most? the least? makes the most decisions? the least?", allows students to put numbers to team dynamics issues, making issues easier to discuss than "how's the team communication going?".

What

An assessment tool that helps student teams see how they are making decisions, dividing work, and interacting in meetings. It also offers the opportunity to make adjustments to improve in problem areas.

When

Midway through a 4+ week project.



How

Here is a sample team processing sheet assignment.

Where

Ideally, students should complete this in class. This ensures that everyone participates, and that faculty can be available to support challenging situations.

How long will this take my students?

- 30-40 minutes

Student Feedback

"It was incredibly helpful and my group is in a significantly better spot because of it. I am learning to let go of the reigns and trust my group members.

Tool: Reading and Reflection - Upon End of Short (1-3 week) Projects

SWEET: Supporting WPI in Equitable and Effective Teamwork

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Tool Introduction

This reflection assignment is intended for projects that are shorter (1-3 weeks).

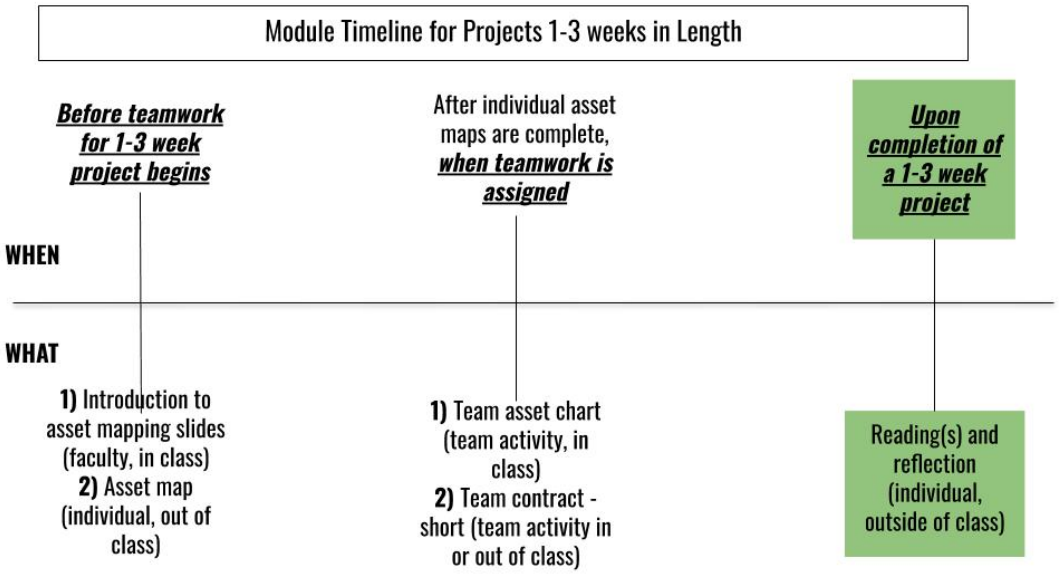
These readings and reflection aim to have students reflect on their current and previous teamwork experiences, particularly through the lens of asset use and unconscious biases and stereotypes that shape team dynamics.

What

1. *1-3 readings, depending on length and course* that help students learn about the benefits of working on teams, as well as the ways in which bias and stereotyping can hamper these benefits, student learning, and team productivity. Below is a *brief description of the aims of each article*. We have also written an *integrated summary of all of the articles*. The integrated summary is aimed at faculty and other users who want to get across the content, but cannot assign multiple readings in class on this content due to time and other constraints.
   - Meadows, L. A., & Sekaquaptewa, D., & Paretti, M. C., & Pawley, A. L., & Jordan, S. S., & Chachra, D., & Minerick, A. (2015, June), *Interactive Panel: Improving the Experiences of Marginalized Students on Engineering Design Teams*, Paper presented at 2015 ASEE Annual Conference & Exposition, Seattle, Washington. 10.18260/p.24344 .
     - 16 pages, accessible scholarly language. ***Article Summary and Why we Assign.***
   - Finnegan (2017) "It's Good Till It's Not: Does Group Work Really Help all Students?". *Inside Higher Education.*
     - 2-3 pages, easy read, heavy content. ***Article Summary and Why we Assign***
   - Williams, Joan, 2015. The Five Biases Pushing Women Out of STEM. *Harvard Business Review.*
     - 3-4 pages; easy read, heavy content. ***Article Summary and Why we Assign***
   - Pfeifer, Geoff, 2019. A Brief Review of Some of the Literature and Research on the Benefits and Problems of Student Teams. *Integrated summary of the three articles above.*
     - 6 pages, accessible scholarly language. ***For content summary and why we assign, see the 3 links for the articles above.***
2. A 1-2 page reflection that asks students to reflect on their current team experiences, if their assets were used, team strengths and challenges, as well as bias and stereotyping on their current team, in their previous teams, and/or in team dynamics more generally.

When

- At the end of a 1-3 week project, as the last reflective assignment to support learning associated with the project.



How

- Here is a sample assignment. While this assignment instructs students to read the summary [Pfeifer, Geoff, 2020. A Brief Review of Some of the Literature and Research on the Benefits and Problems of Student Teams], the reflection questions can remain the same if you only assign one or more of the other three articles.

Where

Students can complete outside of class

How long will this take my students?

It will depend upon which and how many articles you assign, along with the reflection.

- Pfeifer (2020), 6 pages, accessible academic writing, ~45 minutes, depending on the student
- Meadows et al (2015), 16 pages, accessible academic writing, ~90 minutes, depending on the student
- Finnegan (2017), 2-3 pages, easy read, heavy content ~20 minutes, depending on the student
- Williams (2015), 3-4 pages, easy read, heavy content ~30 minutes, depending on the student
- 2-3 page reflection: 2 hours

Tool: Reading and Reflection - Midway Through Longer (4+ week) Projects

SWEET: Supporting WPI in Equitable and Effective Teamwork

Created for the Great Problem Seminar Program at Worcester Polytechnic Institute. Workshops, testing, and broader implementation support funded by the Davis Educational Foundation.

Tool Introduction

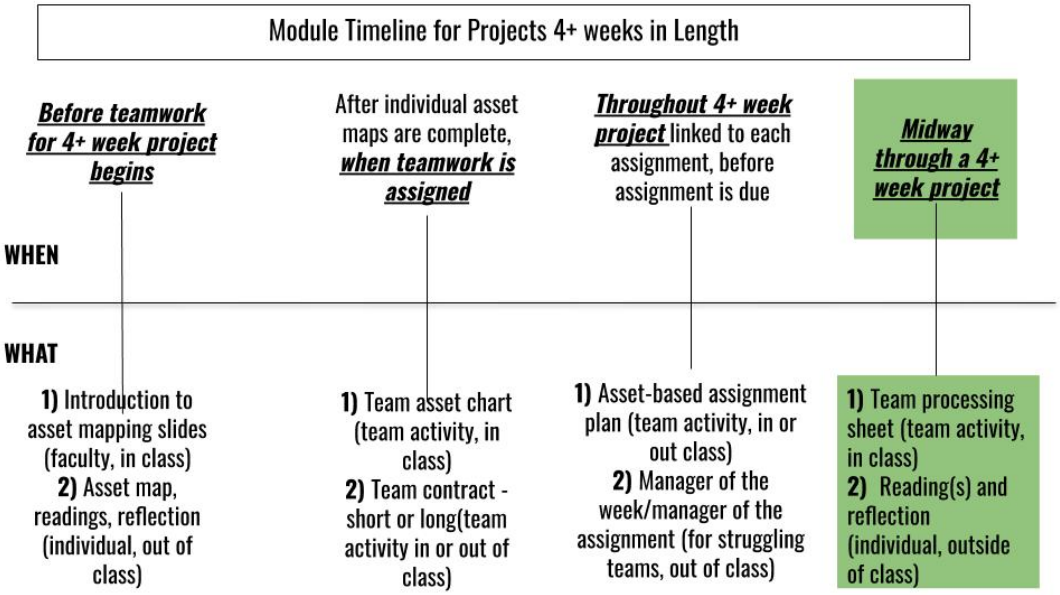
This reflection assignment is intended for projects that are longer (4+ weeks). These readings and reflection aim to have students reflect on their current and previous teamwork experiences, particularly through the lens of asset use and unconscious biases and stereotypes that shape team dynamics.

What

3. *1-3 readings, depending on length and course* that help students learn about the benefits of working on teams, as well as the ways in which bias and stereotyping can hamper these benefits, student learning, and team productivity. Below is a *brief description of the aims of each article*. We have also written an *integrated summary of all of the articles*. The integrated summary is aimed at faculty and other users who want to get across the content, but cannot assign multiple readings in class on this content due to time and other constraints.
    - Meadows, L. A., & Sekaquaptewa, D., & Paretti, M. C., & Pawley, A. L., & Jordan, S. S., & Chachra, D., & Minerick, A. (2015, June), *Interactive Panel: Improving the Experiences of Marginalized Students on Engineering Design Teams*, Paper presented at 2015 ASEE Annual Conference & Exposition, Seattle, Washington. 10.18260/p.24344 .
        - 16 pages, accessible scholarly language. ***Article Summary and Why we Assign.***
    - Finnegan (2017) "It's Good Till It's Not: Does Group Work Really Help all Students?". *Inside Higher Education.*
        - 2-3 pages, easy read, heavy content. ***Article Summary and Why we Assign***
    - Williams, Joan, 2015. The Five Biases Pushing Women Out of STEM. *Harvard Business Review.*
        - 3-4 pages; easy read, heavy content. ***Article Summary and Why we Assign***
    - Pfeifer, Geoff, 2019. A Brief Review of Some of the Literature and Research on the Benefits and Problems of Student Teams. *Integrated summary of the three articles above.*
        - 6 pages, accessible scholarly language. ***For content summary and why we assign, see the 3 links for the articles above.***
4. A 2-3 page reflection that asks students to reflect on their current team experiences, if their assets were used, team strengths and challenges, as well as bias and stereotyping on their current team, in their previous teams, and/or in team dynamics more generally.

When

- Midway through a 4+ week project, as a mid-project reflective assignment to evaluate the team's dynamics and to reflect on how to move forward most equitably and effectively.



How

- Here is a sample assignment. While this assignment instructs students to read all three articles, the reflection questions can remain the same if you only assign one or two of the articles, or the summary [Pfeifer, Geoff, 2020. A Brief Review of Some of the Literature and Research on the Benefits and Problems of Student Teams].

Where

Students can complete outside of class

How long will this take my students?

It will depend upon which and how many articles you assign, along with the reflection.

- Pfeifer (2020), 6 pages, accessible academic writing, ~45 minutes, depending on the student
- Meadows et al (2015), 16 pages, accessible academic writing, ~90 minutes, depending on the student
- Finnegan (2017), 2-3 pages, easy read, heavy content ~20 minutes, depending on the student
- Williams (2015), 3-4 pages, easy read, heavy content ~30 minutes, depending on the student
- 2-3 page reflection: 2 hours

Tool: Rotating Manager of the Assignment

SWEET: Supporting WPI in Equitable and Effective Teamwork

Created for the Great Problem Seminar Program at Worcester Polytechnic Institute. Workshops, testing, and broader implementation support funded by the Davis Educational Foundation.

Tool Introduction

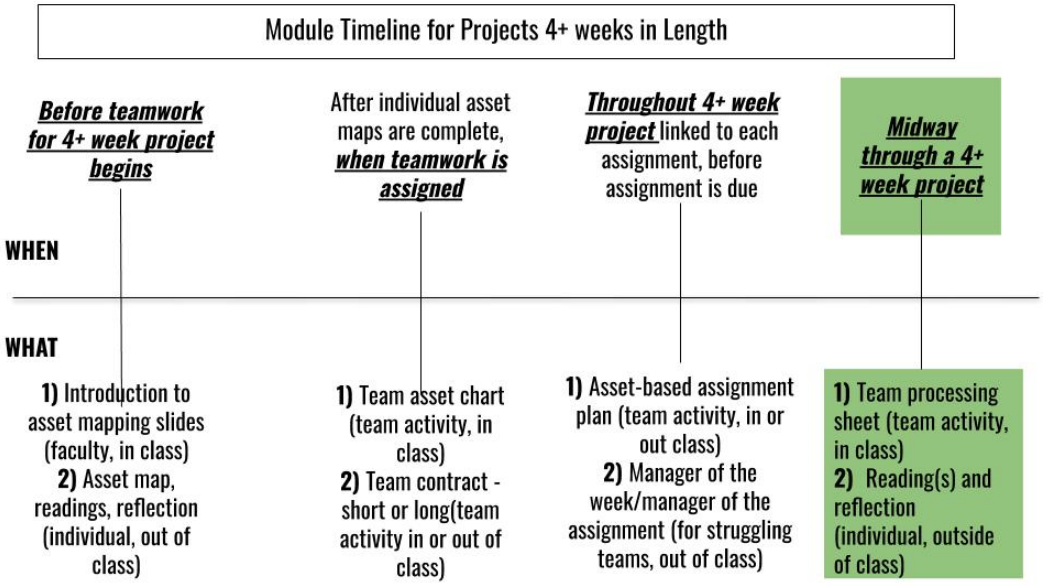
The Rotating Manager of the Assignment is recommended for longer (4+ week) projects.

What

Students rotate the role of team manager to share the experience and the responsibility.

When

- Throughout the course of a longer term project
- When a team has multiple domineering teammates fighting for lead role; or when a team consists of all members who don't like to lead.



How

Direct students to this list of tasks that they will take on as team manager when it is their turn in the rotation.

Where

Students will manage and share their manager role both inside and outside of class

How long will this take my students?

- Being the manager of a team project will take 3+ hours/week, depending on the project. However, since the manager role rotates, the time commitment rotates as well.

Student Feedback

"The students in the project manager roles are really hold me accountable; and they have not dropped the ball so far."

Bringing the Tools Together into a Module for Shorter (1-3) Week Projects

Module Purpose

This module brings together a collection of tools that instructors can use to help teach students how to manage teamwork more equitably and effectively throughout shorter (1-3) week projects.

Getting Started

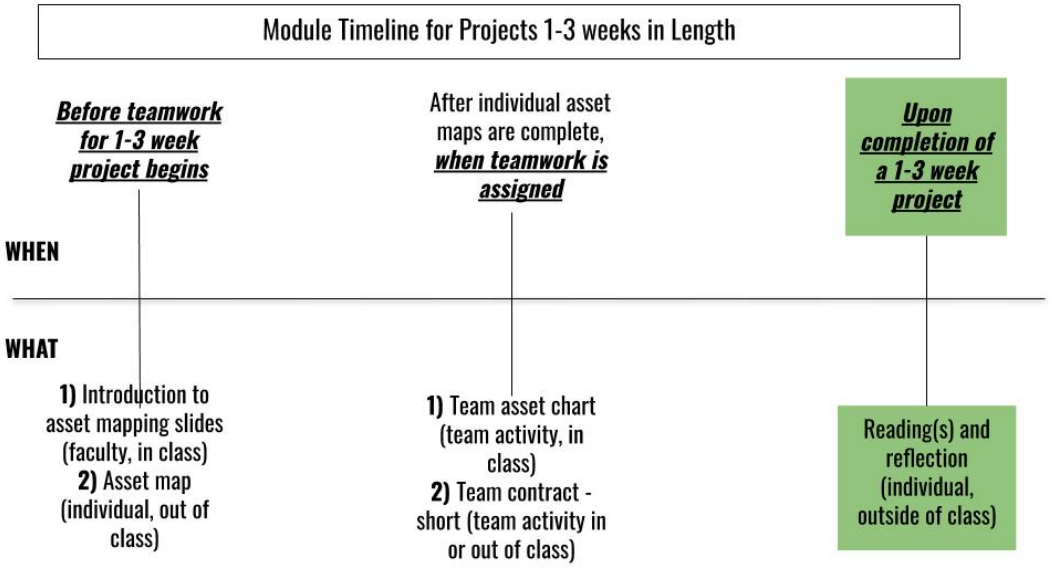
We recommend introducing the importance of learning how to work on teams and to the concept of asset mapping in class through something like this set of slides.

What is in this module?

For instructors (but can share with students)

This module utilizes the following tools: 1) Tool: Asset Map 2) Tool: Team Asset Chart 3) Tool: Team Contract - Short 4) Tool: Reading and Reflection - upon end of short (1-3 week) projects. Instructors can read through these tools to learn what they are, when to use them, how to use them, where they should be completed, how long they will take your students to complete, as well as relevant references and summaries of assigned readings.

Visual Timeline of Content for this Module



Bringing the Tools Together into a Module for Longer (4+) Week Projects

Module Purpose

This module aims to teach students how to manage teamwork more equitably and effectively throughout longer (4+) week projects.

Getting Started

We recommend introducing the importance of learning how to work on teams and to the concept of asset mapping in class through something like this set of slides.

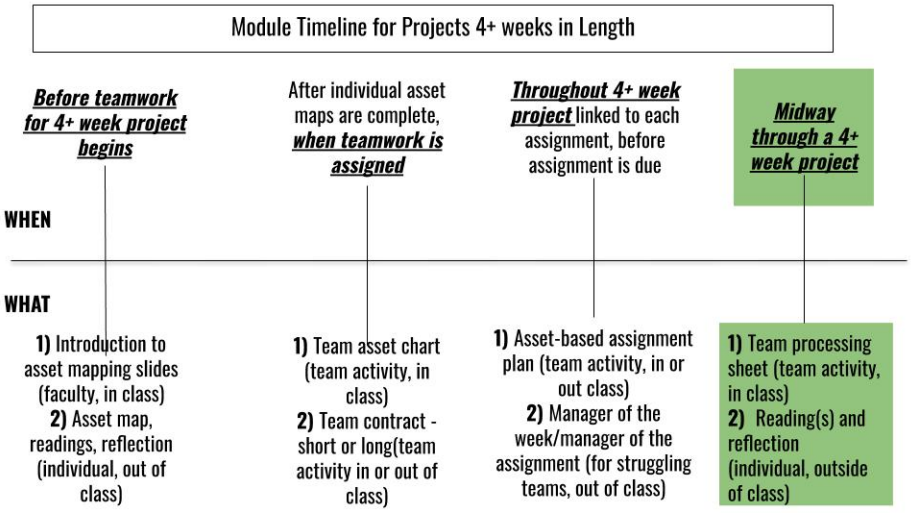
What is in this module?

For instructors (but can share with students)

This module utilizes the following tools: 1) Tool: Readings, Self-Assessments, and Reflection - Before the Project Begins 2) Tool: Asset Map 3) Tool: Team Asset Chart 4) Tool: Team Contract - Short OR Tool: Team Contract - Long 5) Tool: Asset-Based Assignment Plan 6) Tool: Team Processing Sheet 7) Tool: Reading and Reflection - Midway through longer (4+ week) projects

Instructors can read through these tools to learn what they are, when to use them, how to use them, where they should be completed, how long they will take your students to complete, as well as relevant references and summaries of assigned readings.

Visual Timeline of Content for this Module



Overview and Getting Started - ID 2050 and the Project Term

Module Purpose

This module aims to teach students how to manage teamwork more equitably and effectively throughout ID2050 the Inter-Qualifying Project (IQP) project term done at WPI during a student's junior year.

Getting Started

We recommend introducing the importance of learning how to work on teams and to the concept of asset mapping in ID 2050, or when you begin using these tools, through something like this set of slides.

What is in this module?

For instructors (but can share with students)

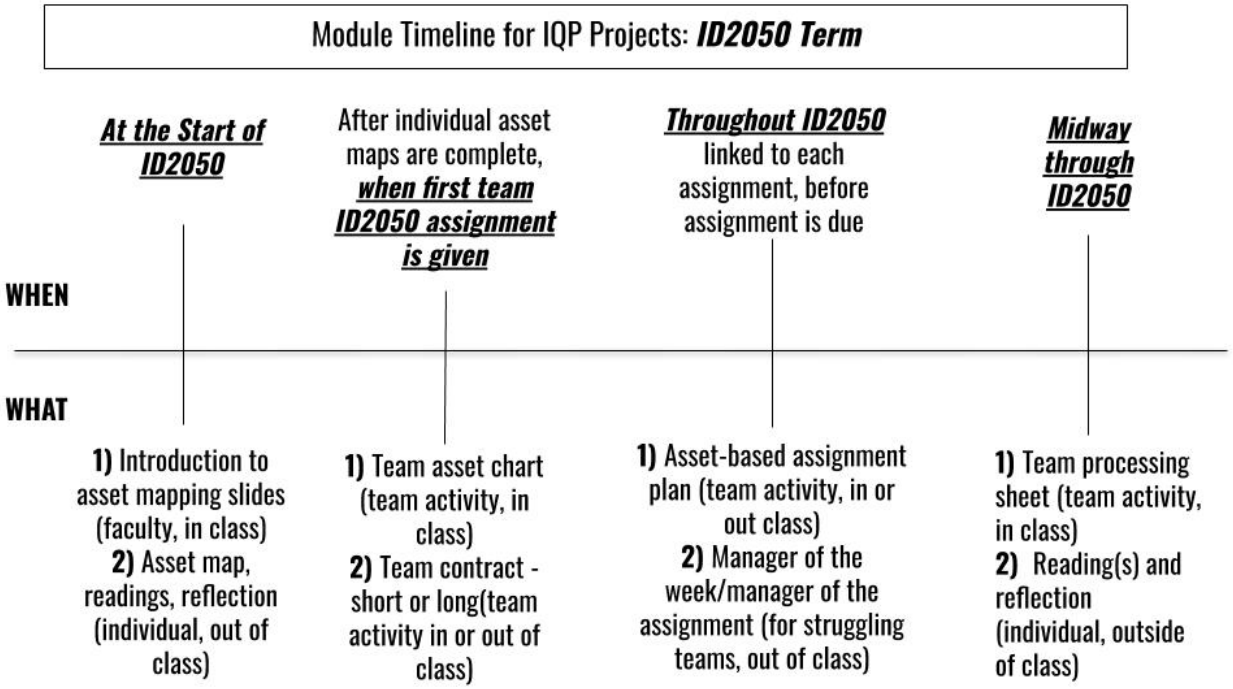
This module is broken into two sections. One section is for work we recommend to be completed in ID 2050, and one section is for work to be completed during and at the end of the IQP project term. However, instructors can modify these as needed, based on start date, etc. Instructors can read through these tools to learn what they are, when to use them, how to use them, where they should be completed, how long they will take your students to complete, as well as relevant references and summaries of assigned readings.

Tools for ID2050: 1) Tool: Readings, Self-Assessments, and Reflection - Before the Project Begins 2) Tool: Asset Map 3) Tool: Team Asset Chart 4) Tool: Team Contract - Short OR Tool: Team Contract - Long 5) Tool: Asset-Based Assignment Plan 6) Tool: Team Processing Sheet 7) Tool: Reading and Reflection - Midway through longer (4+ week) projects

Tools for IQP Project Term: 1) Revise and Update your Asset Map 2) A modified team processing sheet that is specifically designed for use during the project phase 3) An end of project reflection assignment, which you can use as is, or modify/add to your current end of project reflection.

The rest of the module contains the assignments related to the tools used in this module. Please note that all assignments have been set up to be worth 100 points and to allow all file types. Please edit this as you see fit.

Visual Timeline of Content for this Module Use and timing of tools during ID 2050



Use and recommended timing of tools during the Project Term (in the field):