

Tips for Top Tier Team Teaching

Dr. Todd R Hamrick, West Virginia University

Dr. Todd Hamrick, Ph.D. is a Teaching Professor in the Fundamentals of Engineering Program at West Virginia University Statler College of Engineering and Mineral Resources, a position he has held since 2011.

Dr. Ather Almasri, West Virginia University

Dr. Almasri is currently a teaching assistant professor in the Fundamentals of Engineering Program (FEP) at the Statler College of Engineering, West Virginia University. He has been serving in this position since 2020. Before joining West Virginia University, he worked as an assistant professor of Chemical Engineering at Imam University for 10 years. Dr. Almasri holds a bachelor's degree in Chemical Engineering, as well as master's and Ph.D. degrees in Materials Engineering.

Dr. Carter Hulcher, West Virginia University

Dr. Hulcher is a Teaching Assistant Professor in the Fundamentals of Engineering Program in the Benjamin M. Statler College of Engineering and Mineral Resources at West Virginia University in Morgantown, WV. He has been in his current role at WVU since 2020. Dr. Hulcher holds degrees in Civil Engineering, as well as Mathematics.

Dr. Xinyu Zhang, West Virginia University

Dr. Xinyu Zhang is a Teaching Assistant Professor in the Fundamentals of Engineering Program of Benjamin M. Statler College of Engineering and Mineral Resource at West Virginia University. She received her Ph.D. in Environmental Engineering in 2012 from University of Illinois at Urbana-Champaign. She is a licensed P.E. in North Carolina. Her research interests include STEM education such as broadening participation in engineering and advanced technologies for STEM education, engineering entrepreneurship, environmental engineering, and sustainable biomanufacturing. She started to lead a summer bridge program for incoming first-year engineering students called Academy of Engineering Success (AcES) in 2021.

Dr. Akua B. Oppong-Anane, West Virginia University

Akua Oppong-Anane is a Teaching Assistant Professor in the Fundamentals of Engineering Program in the Benjamin M. Statler College of Engineering and Mineral Resources at West Virginia University. She holds a bachelor's degree in Chemical Engineering, a master's degree in Chemistry and a doctoral degree in Environmental Engineering Sciences. Her research areas are in groundwater contamination at landfill sites, advising and retention of first year engineering students.

Tips for Top Tier Team Teaching

FYEE July 31, 2023

Team teaching has great advantages for both students and faculty but can be challenging to implement. Team teaching is defined here as each instructor teaching a different section of the same course and coordinating on the material and overall course schedule. Some advantages are that instructors can divide the workload, generate and develop new ideas, build on one another's strengths, ensure consistency among different class sections, and effectively integrate new faculty member into the teaching team. Students see uniformity across sections, interesting and applicable projects, and assessments that are fair and consistent. Challenges can include lower levels of autonomy, communication problems, and a risk of students in different sections copying work. This workshop will be taught by an experienced Fundamentals of Engineering team. Participants will gain valuable and practical methods for implementing and improving team taught courses.

Tips for Top Tier Team Teaching
Fundamentals of Engineering Program
Benjamin Statler College of Engineering and Mineral Resources
West Virginia University

Atheer Almasri, Teaching Assistant Professor Atheer.Almasri@mail.wvu.edu

Todd Hamrick, Teaching Professor Todd.Hamrick@mail.wvu.edu

Carter Hulcher, Teaching Assistant Professor Carter.Hulcher@mail.wvu.edu

Akua Oppong-Anane, Teaching Assistant Professor
Akua.OppongAnane@mail.wvu.edu

Xinyu Zhang, Teaching Assistant Professor Xinyu.Zhang@mail.wvu.edu

Today's Workshop

- Introduction
- Team teaching structure and strategies for managing the load
- Learning Management System tools
- Project development in team taught courses
- Support for new team members
- Now it's your turn - team teaching breakout session
- Share what you've learned

Introduction

Todd Hamrick

Introduction

- Definition: Team teaching means that multiple instructors teach the entirety of the course while coordinating schedules and materials. (AKA parallel teaching)
- Who we are and what we do
 - West Virginia University, Statler College of Engineering and Mineral Resources
 - Fundamentals of Engineering Program
 - Common first year program for 9 departments
 - Primary teaching functions are Engineering Problem Solving 1 and 2
 - 1st semester is professional skills and Excel analysis
 - 2nd semester is mostly MATLAB programming
 - All of these are team taught, project based

Introduction

- Enrollment is about 850 students/year, house about 1300 ($\frac{1}{3}$ of the college)
- Learning center, small labs
- Total of 8 faculty or equivalent (non-tenure)
- Teaching load 4 courses/semester, class sizes typically around 45 but varies
- Advantages to team teaching
 - Share the load
 - Consistency during semester and between semesters
 - Build on strengths
 - Project development and diversity
 - New team members, coverage and backup

Introduction

- Challenges to team teaching
 - Commitment from all members
 - Reduced autonomy - requires compromises
 - Communication and scheduling
 - Academic integrity
- Your turn
 - What is status of your team?
 - No team, Just forming, Needs improvement, We're experts
 - What tools would you like to take back home?

Team teaching structure and strategies for managing the load

Atheer Almasri

Importance of Team Structure

- A well-structured teaching team
 - allows for division of tasks/assignments between members.
 - allows for workload distribution more evenly and efficiently.
 - allows educators to use their individual strengths and expertise.
 - defines roles and responsibilities.
- Help and Support
 - A team structure fosters collaboration and support among team members → By working together towards a common goal, educators can share ideas, resources and strategies.
 - A team structure collaboration fosters a supportive environment in which educators can learn from each other, provide feedback, and improve teaching practice together.
 - A team structure also enables the exchange of best practices and innovative approaches that lead to better research outcomes.

Implementing Team Teaching Methods

- Joint planning

Facilitate collaborative lesson planning sessions.

- Distribute planning work by assigning specific tasks to different team members.
- Learn how to share assessment data, analyze results, and give feedback to students.
- Discuss strategies for monitoring student learning and collaboratively adjusting instruction based on assessment results.

Implementing Team Teaching Methods

- Regular communication – Teams plays a good role.
Schedule regular meetings and check-ins to discuss progress, address challenges, and share updates.
 - Communicate effectively and transparently.
 - Discuss strategies for regular communication, including team meetings, shared documents, and digital platforms.
Emphasize the need for open and respectful dialogue to make shared decisions.
Learn how to coordinate schedules, share resources, and provide timely feedback and support to team members.
 - Help team members manage time effectively by setting realistic deadlines and expectations.
- Consistency and Continuity
 - The team can adjust their curricula, teaching methods, and assessment methods.
 - The team ensures that students receive a cohesive educational experience and reduces any gaps or inconsistencies.

Implementing team teaching methods

- Increased support for students: A well-structured teaching team can provide increased support for students.
 - Open office hours during the pandemic. The students' questions will be answered as the content is the same, regardless of who is covering the office hour.
- Improve career development: A structured teaching team provides opportunities for professional growth.
 - Emphasize the importance of continuous review and evaluation of team-teaching practices.
Discuss how team teachers can participate in professional development activities and share their insights with the team to improve overall efficiency.
- Collaboration support, Flexibility and Adaptability:
Encourage team members to support each other as needed.
- Keep in mind that unforeseen circumstances or changes in the educational environment may require adjustments to the distribution of the workload. Encourage team members to take a flexible and adaptable approach, allowing for changes and adjustments as needed.

Learning Management System (LMS) tools

Xinyu Zhang

LMS Assessment Tools

- Consistency is very important to students
 - Fair and uniform assessments across multiple sections
 - Quality Matters
- Seamless adaptation for in-person, online, and Hyflex
- Timely update and assessable to instructors and GTAs

LMS Assessment Tools - Master Shell

ENGR-102-MASTER-INSTRUCTORS Course Content Module 1: Introduction to Matlab

Table of Contents

- 1. Module Learning Objectives
- 2. Learning Activities
- 3. Introduction to the Matlab Environment
- 4. Matlab as a Calculator
- 5. Variables
- 6. Script Files
- 7. Relational and Logical Operators
- 8. Matlab Built-in Functions
- 9. Homework 1
- 10. Homework 2
- 11. Recommended Practice Problem Set 1
- 12. Recommended Practice Problem Set 2
- 13. OLD Homework 1
- 14. OLD Homework 2

Module 1: Introduction to Matlab

Build Content ▾ Assessments ▾ Tools ▾ Partner Content ▾

Module Learning Objectives

After completing this module, you should be able to:

- 1.1 Access and identify each of Matlab's main windows and explain the purpose of each one; (CLO 1)
- 1.2 Perform basic operations inside one of the Matlab's main windows, the command window; (CLO 1)
- 1.3 Compute numerical values using Matlab's built in functions and relational and logical operators; (CLO 1)
- 1.4 Create and save script files; (CLO 1)
- 1.5 Use a script file to solve problems. (CLO 1)

Learning Activities

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Module Level Objectives	Assignments	Activities (To do List)
1.1, 1.2, 1.3, 1.4, 1.5	Reading Assignment	Read Chapter 1 of the required course book. Section 1.7 is optional. Review the relevant PowerPoint presentations and other material within this module.
1.1, 1.2, 1.3, 1.4, 1.5	Introduction to MATLAB (Module 1) Quiz	Complete the Module 1 Quiz in eCampus, as assigned.
1.1, 1.2, 1.3, 1.4, 1.5	Module 1 Homeworks (1 and 2) and ICAs	Complete the Module 1 Homeworks (1 and 2) and In Class Activities (ICAs), as assigned.

ENGR-101-MASTER-FEP SPRING 2023

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- Campus Resources**
- Start Here**
- Syllabus, Announcements, Intro to Statler FEP and ENGR 101**
- Project Management Module**
- Teamwork & Meeting Module**
- WVU Library Information Module**
- Engineering Design Process Module**
- Technical Communication Module**
- Excel Module**

ENGR-101-MASTER-FEP

Course Home

=>START HERE<=

202201 Course Content

SPRING 2023

Discussions

Groups

Send Email (External)

Course Messages (Internal)

Check Grades>>>

My Grades

Campus Resources

Tools

How to Use this Template

Exams

Course Management

Control Panel

Content Collection

Course Tools

Evaluation

Grade Center

Users and Groups

Customization

Packages and Utilities

Help

LMS Assessment Tools – Question Pool

Details: Fill in the Blank Question

Question	Given the following Array, $M = \begin{bmatrix} -5 & 9 & -4 & 2 & -2 \\ 8 & 2 & -1 & 9 & 2 \\ -3 & 0 & -9 & 1 & -4 \end{bmatrix}$ evaluate the output from the command M(1, 4:5)	
Evaluation Method	Answer	Case Sensitivity
Exact Match	[2 -2]	
Exact Match	2 -2	
Exact Match	[2, -2]	
Topics	2D Addressing	

The original source of the linked question is null.
 This question is used 10 times in the following 10 tests or surveys:

- Exam 1 Spring 2022
- Exam 1 Spring 2023
- Exam 1 Spring 2020
- Exam 1 Spring 2021
- Exam 1 Summer 2021
- Exam 1 Summer 2023

QUESTION TEXT	QUESTION TYPE
<input type="checkbox"/> The expense money is money spent on itmes that that have expected lives of on...	True/False
<input type="checkbox"/> If you were creating a technical PowerPoint presentation, which of the follow...	Multiple Answer
<input type="checkbox"/> If you were creating a technical PowerPoint presentation, which of the follow...	Multiple Answer
<input type="checkbox"/> If you were creating a technical PowerPoint presentation, which of the follow...	Multiple Answer
<input type="checkbox"/> In a formal technical report, is an Introduction necessary, and what goes in ...	Multiple Choice
<input type="checkbox"/> In a technical report, how are Figures handled? Select all that apply.	Multiple Answer
<input type="checkbox"/> Select the best answer.	Multiple Choice
<input type="checkbox"/> Table labels go above tables and Figure labels go below figures.	True/False
<input type="checkbox"/> The more words and long sentences you have on a powerpoint slide, the better....	True/False
<input type="checkbox"/> What should be included in the Recommendations and Future Works section of th...	Multiple Answer
<input type="checkbox"/> What should NOT be included in the Recommendations and Future Works section o...	Multiple Answer
<input type="checkbox"/> What should be included in the abstract section of a technical report? Select...	Multiple Answer
<input type="checkbox"/> What should NOT be included in the abstract section of a technical report? Se...	Multiple Answer
<input type="checkbox"/> What should be included in the Discussion section? Select all that apply, inc...	Multiple Answer
<input type="checkbox"/> What should NOT be included in the Discussion section? Select all that apply,...	Multiple Answer
<input type="checkbox"/> When making a PowerPoint presentation you should include all the information ...	True/False
<input type="checkbox"/> Which of the following belongs in the background (research) section of the te...	Multiple Answer
<input type="checkbox"/> Which of the following does NOT belong in the background (research) section o...	Multiple Answer
<input type="checkbox"/> Which of the following is a meaningful title?	Multiple Choice

LMS Assessment Tools - Rubric

Criteria	Levels of Achievement			
	Poor	Fair	Good	Excellent
Function Definition Line Weight 50.00%	0.00 % The function definition line is not present.	50.00 % There are significant issues with the function definition line. There may be missing components or significant syntax errors.	75.00 % All elements are present in the function definition line; however, one or more may be incorrectly defined or in the wrong order.	100.00 % The Function definition line is present and correct.
H1 Line and Help Text Weight 25.00%	0.00 % The H1 Line and Help Text are not present in the function.	50.00 % The H1 Line or Help Text is started but is missing most of the help text or is not commented properly. This may or may not produce an error.	75.00 % The H1 Line and Help Text is present; however, there are small issues, or it is incomplete.	100.00 % The H1 Line and Help Text is present and correct.
Equation Definition Weight 25.00%	0.00 % The equation is not defined.	50.00 % There are significant issues in defining the equation.	75.00 % The equation is incorrectly typed or there are some syntax or logic errors in the definition of the equation.	100.00 % The equation is correctly defined within the function.

Criteria	Levels of Achievement				
	Not Present	Poor	Average	Very Good	Excellent
Presentation Mechanics (1) Appropriate attire worn by all team members. (2) All team members maintain good eye contact with audience. (3) All team members speak clearly. (4) All team members speak loudly enough for all in the class to hear. Weight 20.00%	0.00 % Missing all listed grading criteria.	25.00 % Missing 3 listed grading criteria OR significant issues with 2 or more grading criteria	60.00 % Missing 2 of the listed grading criteria OR significant issues with 1 of the grading criteria OR small issues with 3 or 4 of the grading criteria	80.00 % Missing 1 of the listed criteria OR small issues with up to 2 of the criteria	100.00 % There are no missing grading criteria
Elevator Pitch Mechanics (1) The elevator pitch introduces the name and title/reason for project, expresses the main themes in the work, and achievements recorded, and have a closing remark. (2) Good balance in team member speaking (3) Questions answered showing full knowledge of material by all team members (4) Questions allowed for at the end of the presentation. Weight 15.00%	0.00 % Missing all listed grading criteria	25.00 % Missing 3 listed grading criteria OR significant issues with 2 or more grading criteria	60.00 % Missing 2 of the listed grading criteria OR significant issues with 1 of the grading criteria OR small issues with 3 or 4 of the grading criteria	80.00 % Missing 1 of the listed criteria OR small issues with up to 2 of the criteria	100.00 % There are no missing grading criteria

Project development in team taught courses

Carter Hulcher

Building on Strengths

- Each team member brings different backgrounds
- How can you use strengths of colleagues to create projects?
- Open to change/suggestions – send out for revisions
- Example: Project in ENGR 102 (Matlab programming class)
 - Colleague's knowledge of Bioreactors utilized to create project

Collaborating with Other Units

- Units within the college/university have different capabilities/resources
- How can we collaborate with other units to make projects?
- Example: WVU Innovation Hub
 - Using equipment to help us or students with projects
- Example: Working with a department
 - Collaborating with the PNGE department to create a project

Keeping it Fun!

- The key word: Engagement
- Is it fun/engaging for you?
- Is it relevant?
- Example: Games in ENGR 102 (Matlab Programming class)
 - Wordle game
 - Connect 4 Spin
 - Hands-on applications

Hands-on Projects

- These were all developed for our ENGR 102 coding class (using Arduino):
- Security System
- Obstacle-Avoiding Robot
- Proximity Alarm (Build and Code Activity)
- Candy Color Sorting Device – Possible use of Python/Raspberry Pi

Support for new team members

Akua Oppong-Anane

New Faculty, Adjuncts, GTA's

- “ MASTER” course shells serve as a library resource
- Easy whole package transfer of any previous course material
- Multiple instructors can be added to the same course

DEV.ENGR-101-MASTER-FEP

ENGR-101-MASTER-FEP Original Course View

[Multiple Instructors](#) | [More info](#) ▼

DEV.ENGR-101-MASTER-NewMaster

ENGR-101-MASTER-NewMaster Original Course View

| [More info](#) ▼

DEV.ENGR-102-MASTER-INSTRUCTORS

ENGR-102-MASTER-INSTRUCTORS Original Course View

[Multiple Instructors](#) | [More info](#) ▼

DEV.ENGR-140-MASTER-TH

ENGR-140-MASTER-TH Original Course View

[Multiple Instructors](#) | [More info](#) ▼

New Faculty, Adjuncts, GTA's

ENGR-102-MASTER-INSTRUCTORS Start Here Edit Mode is:

Start Here

Build Content Assessments Tools Partner Content

Welcome!

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Adapt to meet your needs and insert a picture of yourself to the right

Welcome to ENGR 102 and thank you for enrolling in this course at West Virginia University!
My name is **Instructor** and I will be your instructor for this course.

It will be very helpful for you to be self-motivated and disciplined to ensure that your assignments and course requirements are completed on time. This course will follow a schedule, have assignment deadlines, and has required team work and discussions.

I am a full professor in field at WVU since 2000. I attended **Name of College/University (City, State)** and hold an MA in field. I am married and I have 3 children. I like to ride bikes on weekends and play football with my kids.

I am looking forward to a great semester with you!

You should plan to spend at least 3.5 hours total per week in this course.

Please take a moment to read the course syllabus and the entire "Start Here" section to ensure you start on the right track!

Let me know if you have any questions about the course.

I hope you have a great semester!

Sincerely,
Instructor

Course Learning Objectives

ENGR-101-MASTER-FEP SPRING 2023

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Course Home

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202201 Course Content

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Campus Resources

Start Here

Syllabus, Announcements, Intro to Statler FEP and ENGR 101

Project Management Module

Teamwork & Meeting Module

WVU Library Information Module

Engineering Design Process Module

Technical Communication Module

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New Faculty, Adjuncts, GTA's

START HERE

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Welcome from Dr Akua Opong-Anane!
Enabled: Statistics Tracking

Welcome to ENGR 155!
Hello All!
Welcome to "ENGR 155" and thank you for enrolling in an online course at West Virginia University!
My name is Dr. Akua Opong-Anane and I will be your instructor for this course.
It will be very helpful for you to be self-motivated and disciplined to ensure that your assignments and course requirements are completed on time. This course will follow a schedule and have assignment deadlines.
I am currently a Teaching Assistant Professor in the Fundamentals of Engineering Program in the Benjamin M. Statler College of Engineering and Mineral Resources at West Virginia University (WVU). This is my first semester with extensive teaching experience.
I am looking forward to a great semester and getting to know all of you!
Please take a moment to read the course syllabus to ensure you start on the right track! You will submit assignments for this course on both eCampus and via the Spatial Vis App on your phone / computer.
I hope you have a great semester, and never hesitate to contact me via email (akua.oppanganane@mail.wvu.edu) if you have any questions!

Sincerely,
Dr. Akua Opong-Anane

ENGR 155 Syllabus Spring 2023
Enabled: Statistics Tracking

Learning Modules

Build Content Assessments Tools Partner Content

Learning Modules
Each week, modules will be opened on Monday morning and must

Week 1: Intro and 2D Rotations
This module is due on **Sunday, March 12 by 11:59PM.**

Spring Holiday - March 19 (no assignments due)

Week 2: Isometric Drawings
This module is due on **Sunday, March 26 by 11:59PM.**

Week 3: Orthographic Drawings
This module is due on **Sunday, April 2 at 11:59PM.**

Week 4: Inclined and Curved Surfaces
This module is due on **Sunday, April 9 by 11:59PM.**

Week 5: Flat Patterns
This module is due on **Sunday, April 16 by 11:59PM.**

New Faculty, Adjuncts, GTA's

- Easy to hit the ground running for new faculty, adjuncts and GTA's
- My personal example

Fw: 202301-ENGR-155-701, 202301-ENGR-155-7H1: ENGR151 - Welcome Email!

Sent: Monday, March 6, 2023 12:02 AM
Subject: 202301-ENGR-155-701, 202301-ENGR-155-7H1: ENGR151 - Welcome Email!

Dear student

Welcome to ENGR155! We are excited to have you enrolled in ENGR155. Dr. Akua Oppong-Anane is your instructor in ENGR155.

As soon as you access the course on ecampus, please visit the tab labeled as "START HERE". It contains the syllabus for the course and other important information.

For the course, we will be using a spatial visualization software developed by egrove.education

To purchase the software (\$20 software), please use the following information:

Student Download Instructions

Course/Section	Invite Code
ENGR 155 – 701/H01	ZFPsd

Here is a video that goes through the registration process: <https://youtu.be/wjdyrEfryyM>

1. Visit our website (egrove.education)
2. Click the Log In/Sign Up Button
3. Click Sign Up
4. Create an account by entering your First Name, Last Name, Email Address, and Password. Then click "Sign up"
5. Verify your email address by logging into your account email. You should have a "Welcome to Spatial Vis!" email. Open the email and click the link.
6. You will be redirected to log in to enroll in a course. Log In using your Email and Password from your new account and click sign up
7. Enter your **invite Code** provided above and click submit.
8. If the course looks correct, proceed to the payment screen by selecting "Checkout".
9. Enter your credit card information and select pay. Now you are registered for the course.
10. You may now log in to the Spatial Vis mobile app on your Chromebook, Tablet, or Phone using the Apple App or Google Play store.

If you already have a Spatial Vis account, follow the instructions below to register for your new course and have your progress reset.

1. Log in to your account at <https://egrove.education/>.
2. In the top right, select the dropdown arrow next to your name.
3. Select "Enroll in a new course".
4. Enter your new course code and submit.
5. Select Enroll.

You are now enrolled in a new course. If your progress does not seem to have reset, please contact info@egrove.education.

Please let us know if you have any questions.

Sincerely,
Dr. _____

Activities

- (5 min) Form into groups of 3-5
 - Introduce yourselves to your new teaching team
- (15 mins) Work the challenge
 - Create deliverables
- (20 mins) Share your solutions
- (5 mins) Reflection
 - What are the step you can take when you get home
 - Complete our feedback form

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Akua Oppong-Anane, Teaching Assistant Professor
Akua.OppongAnane@mail.wvu.edu

Xinyu Zhang, Teaching Assistant Professor Xinyu.Zhang@mail.wvu.edu