

# Preparation

- Start iClicker
- Start panopto(shane Thomas will set up
- Access Canvas

# Civil Engineering Design I

## Cee 3880, Spring 2016

### Class hours 3:30-4:20 F in ENG 101 or as specified in course schedule

Richard Peralta, PhD, PE, F.ASCE

Professor, CEE, ENGR 228

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Email official: [richard.peralta@usu.edu](mailto:richard.peralta@usu.edu)

Office Hours 2:30-3:30 T-F in ENGR 228

Graders: Lindsey Kim and Mallory Manly

# Transformations

- *What are your personal hopes for your life?*
- *What are your family's hopes for you in life?*
- *What caused your interest in engineering?*
- *Why do you want to be a civil or environmental engineer?*
- *Generally, what have you learned to date that will help you as an engineer?*
- *What has helped you to develop your favorable personal characteristics?*
- *What concerns do you have about being an engineer?*
- *CEEDS will help your transformation into a licensed Professional Engineer*

fin

## Sp16 CEE-3880-001

Spring 2016

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[Download current schedule here \(...vs17T\)](#) 

[Download Dr. Peralta's class operations slides \(through 03 April\), here.CEE3880\\_daily\\_20160122a.pdf](#) 

### 2016 Assignment Instructions and Evaluation Forms

[Download Common Technical Writing Errors \(...Jan2016vs1a\)](#) (modified from Ms Scheaffer's Common Technical Writing errors) 

[Download Writing Guidance For CEEDS \(...vs1c\)](#) 

[Download Technical Writing Rubric \(...vs7c\)](#) 

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-----TO CLASS OF SPR 2016- MATERIAL BELOW HERE IS OLD AND HAS NOT BEEN UPDATED-----

=====

### Memoranda of Agreement

[Download editable Suggested Memorandum of Agreement for mentor and team signatures.](#) 

[Download Memorandum of Agreement committing students on a team to work together.](#) 

### Current project ideas and opportunities

- *3880syllabus2016\_v11a.pdf*
- *CEE38804880\_2016\_ScheduleBoth20160122e-See3880only.pdf*

CEE3880



CEE4880



- *TechWritingRubricV7b.pdf*
- *MostCommonlyMissedGrammarRulesJan2016vs1a.pdf*
- *WritingGuidanceForCEEDS\_2015\_Vs1c.pdf*

Fin

- ***Cee3880ProposalFormatInstructionsVs10\_2016.docx***
- ***cee3880ProposalFormatInstructionsVs10\_2016.pdf***
- ***Iclicker***
- ***Previous CEEDS projects***



# 20160129 iclicker Questions

Question 1. How enthusiastic am I about working on a project with a team?

A= very enthusiastic to E not enthusiastic

Question 2. How confident am I that I will do my fair share of a team project?

• A= very confident to E not confident

CEE4880 Previous Project Information						
CEE 4880 year	CEE4880 report title	No. of Team Members	Faculty Adviser	External PE Mentor	EPEM org. & address	Client Person Name
	Triple Tyed Engineering-rebuilding pump lift station	5	Dr. Gilberto Urroz, Dr. Joeseeph Caliendo	Paul Lindhardt P.E.	City of Logan	City of Logan Public Works Department
	JACKNJAKS Engineering-Steel Bridge	7	Dr. William Rahmeyer, Dr Marv W. Halling	P.E. Bruce Brotherson		ASCE steel bridge competition
2011	Metropolitan Innovations-Skunk Hollow Landslide Remediation	5	Drs James A.Bay, Gilberto E.Urroz,	John D Rice, PE	CEE dept.	UDOT
2011	Wild Florida Engineers-Observation Tower and Suspension Foot Bridge	5	Dr. Joeseeph Caliendo, Dr. Paul Barr	P.E. Christopher J. Clarke		Wild Florida attraction in Orlando, Florida
2011	Solutions Engineering Consultants-Pedestrian Risk on 700 N, USU Campus	6	Dr. Paul Barr	Lisa Thompson	Cache National Forest	Cache National Forest

CEE 4880 year	CEE4880 report title	No. of Team Members	Faculty Adviser	External PE Mentor	EPEM org. & address	Client Person Name
2011	Intermountain Design Consultants-Water Storage Facility in West Logan-Promenade Water Tower		Dr. Marvin Halling, Dr. Joeseeph Caliendo		Logan City	
2011	Zephyr Concrete Canoe	4	Dr. Gilberto Urroz, Dr. Paul Barr			ASCE Canoe Competition
	Hydro Blue-Hydroelectric Power	7	Dr. Blake Tullis	Lance Houser P.E.	Logan City	Logan City
2012	BBNDOT- 200E 1800 N Road Renovation	3	Drs. Kevin Heaslip and Joseph Caliendo	Jace Mecham P.E.	UDOT	UDOT
2012	Steel Bridge		Drs. Paul Barr and Marv Halling	Dr. Willam Rahmeyer	USU	ASCE Steel Bridge Comp.

2012	Sutherland Engineering-Davis Park Golf Course Irrigation System	6	Dr. Michael Johnson	Nathan Smith P.E.		
2013	TMNT Engineers- 10th West Pedestrian Bridge	5	Dr. Marvin Halling, Dr. Joeseeph Caliendo	Sam Powell P.E.	J.U.B. Engineers Inc.	UDOT
2014	Dream Team- Blacksmith Fork Bridge	5	Dr. Paul Barr	Lance Houser P.E.	Logan City	Logan City
2014	Oliver and Company- Valley View Dog Park and Emergency Preparedness Site	5	Dr. Gilberto Urroz	Bill Young P.E., Draney Cameron E.I.T.	Logan City	Dr. Jay Black, Cache Humane Society
2014	The Crop Dusters- Rattlesnake Ranch	3	Dr. Gilberto Urroz	Ray Howard P.E.	Civil Engineer, NRCS	Charles Redd, Redd Irrigation; Blake Nagel, Landowner
2014	RRAMcrete- New curing process for concrete	4	Dr. Paul Barr	Bill Young P.E., Draney Cameron E.I.T. Brian Michaels (C2HM Hill)	Logan City	ASCE Rocky Mountain Confernce
2014	Net Force Engineering-Paradise Flume	5	Dr. Joeseeph Caliendo, Dr. Joesph Nielsen	Trevor Datwyler		Client wants to irrigate field from river
2014	Total Tank Down- Logan City Water Tank	5	Dr. Paul Barr	Paul Lindhardt P.E.		Logan City

2014	Two Girls and Some Dudes- Aggie Gardens	6	Dr. Marvin Halling	Quin Whitaker, P.E.		USU Student Housing
2014	Los Vaqueros - La Salitrea Water Tank Design		Dr. Ryan Dupont			Engineers Without Borders (EWB) Team
2014	Utah State University Concrete Canoe Team		Dr. Paul Barr	Steven Theruer P.E.		ASCE Concrete Canoe Comp.
2014	TFV Engineers- USU Parking Garage	3	Dr. Paul Barr	Quin Whitaker P.E.		USU
2014	RP Engineers- Off Grid Cabin	5	Blake Tullis	Douglas Beck P.E., Geotech. Eng.		Arnold Org.; near Boise County, ID
2013	Premeditated Girder-Camp Browning Bridge	6	Dr. Paul Barr	Robert Moyle		Boy Scouts
2013	E2E Incorporation-High Adventure Center	4	Dr. Marvin Halling	Dave Pierson, Justin Naser, Doc Moyle		
2013	Ridge Engineering-Crockett Avenue Road Realignment and Bridge Replacement	6	Dr. Gilberto Urroz	Lance Houser		

2013	J^2ENT Engineering-Lundstrom Park Detention Basin	4	Dr Blake Tullis	Lance Houser		Logan City
2013	USU Concrete Canoe Team	5	Dr Paul Barr	Josh Jensen		ASCE Concrete Canoe Comp.
2013	Logan's Heroes-Mantua Pipeline	5	Dr. Gilberto Urroz	William Atkin		Mantua Irrigation Board
2013	Steel Bridge	3	Dr. Paul Barr	Doc Moyle		ASCE Rocky Mountain Comp.
2013	Elite Engineering-Third Dam	5	Dr Micheal Johnson	Lance Houser		Logan City
2013	Campus Compost Engineering Inc.-USU Compost Initiative	5	Dr Ryan Dupont	Don Summit		USU Dining Services

2014	Blacksmith Fork Bridge (Cache Valley)	Logan City	Dream Team-	5	Dr. Paul Barr	Lance Houser P.E.	Logan Cit
2014	Valley View Dog Park and Emergency Preparedness Facility (Cache Valley)	Dr. Jay Black, Cache Humane Society	Oliver and Company-	5	Dr. Gilberto Urroz	Bill Young P.E., Draney Cameron E.I.T.	Logan Cit
2014	Rattlesnake Ranch water rights and irrigation system design	Charles Redd, Redd Irrigation; Blake Nagel, Landowner	The Crop Dusters-	3	Dr. Gilberto Urroz	Ray Howard P.E.	Civil Engineer NRCS
2014	New curing process for concrete	Logan City	RRAMcrete-	4	Dr. Paul Barr	Bill Young P.E., Draney	Logan Cit
2014	Flume relocation and design (Paradise, UT)	Farmer	Net Force Engineering-	5	Dr. Joeseeph Caliendo, Dr. Joesph Nielsen	Trevor Datwyler	
2014	Water Tank	Logan City	Total Tank	5	Dr. Paul	Paul Lindhardt	
2014	Aggie Gardens - Married Student Apartment building	USU Student Housing	Two Girls and Some Dudes-	6	Dr. Marvin Halling	Quin Whitaker, P.E.	

2014	La Salitrea Water Tank Design (Mexico)	Engineers Without Borders	Los Vaqueros -		Dr. Ryan Dupont	
2014	Concrete Canoe	ASCE Concrete Canoe Comp.	USU Concrete Canoe Team		Dr. Paul Barr	Steven Theruer P.E.
2014	USU Parking Garage	USU	TFV Engineers-	3	Dr. Paul	Quin Whitaker
2014	Off Grid Cabin (hydroelectric, solar power, Idaho)	Arnold Org.; near Boise County, ID	RP Engineers-	5	Blake Tullis	Douglas Beck P.E., Geotech. Eng.
2015	Stormwater System Extension	Smithfield City	A & J Engr.			
2015	Pedestrian Bridge over 1000W	Logan City	Children First			
2015	Main Street Bridge Replacement	Logan City	D.A.A.M.			
2015	Wildlife Crossing	Utah Dept of Transportation	Dimond Lio & Sons			
2015	Bridge for La Salitrera, México	Engineers Without Borders	El Loco			



2015	Waste Minimization Opportunity Assessment Plan	Triumph Gear Systems, Park City	H&H Engineering	
2015	Temple Fork Dam	Cache Valley Water Manager & Logan City	JCT^2	
2015	Birch Creek Pool Proposal	Birch Creek Club	Merfolk Solutions	
2015	Sanitary Sewer Lift Station	Logan City	Rango Engr	
2015	Hydroelectric Power Generation on canal	Twin Falls Canal Company	Screw Power	
2015	Right Hand Fork Pedestrian Bridge	US Forest Service	Stream Spanners	
2015	The Farm housing development	Zollinger Family	SubdiVision	
2015	Logan City Center	Logan City	Water Under	

2015	Logan City Center Street Replacement	Logan City	Water Under the Bridge		
2015	2015 Concrete Canoe	USU & ASCE	USU Concrete Canoe Team		
2015	USU Steel Bridge	USU & ASCE	USU Steel Bridge		
2016	Improve Vulcraft prod. Methods	Vulcraft	Bullcraft	5	
2016	Grass Valley Dam	Edwin Judd	Double C	2	
2016	Engineering Innovation Bldg	Utah State University	KJJC Engineering	4	
2016	Pedestrian Bridge to span canal Breach	Logan City Public Works	Last Inc Engineering	4	
2016	Wellsville Dam	City of Wellville	MBMJ	3	
2016	USU Eastern Utility Infrastructure	USU Facilities	MT^2 Engineering	3	Price, Utah

2016	Navajo Mt to Oljato Rd	San Juan County	Oljato	4	<<Connects Navajo town	
2016	Brine Water Reinjection for oil and natural gas exploration	Utah Geological Survey	SBS Engineering Solutions	3	Uintah Basin	
2016	USU Steel Bridge	USU & ASCE	Steel Bridge Design	6		
2016	Stormwater Drainage solution	Le Ruisseau Home Owners Association and City of Logan	Storm Engineering	4		
2016	Panguitch Aricultural Bridge	Utah Agricultural Experiment Station	Triple B Engineering	5	Panguitch	
2016	Produced water treatment within Uintah Basin	Utah Geological Survey	UES Produced Water Treatment	7	Uintah Basin	
2016	2016 Concrete Canoe	USU & ASCE	USU Concrete Canoe	5		

# Snøhetta building green-roofed Temple University Library in Philadelphia

ADAM WILLIAMS JANUARY 27, 2016

6 PICTURES

20160129



The Temple University Library is due to be completed in late 2018 (Credit: Snøhetta)



Erica and Peter in front of their flood-proof greenhouse and amphibious car (Credit: BAT Studio)

After their 5<sup>th</sup> flood, in 2014 they had to do something. They liked their River Thames home too much to move. They commissioned BAT Studio to build a greenhouse that could double as a flood-proof safe place storage.





Measuring 29 sq m (312 sq ft) and consisting of one large interior space, the aptly-named Greenhouse That Grows Legs is constructed from glue laminated timber, supported on a steel frame, and sports four hydraulic legs that work simultaneously to lift it 800 mm (2.6 ft) off the ground.

"We love our house by the Thames – the only drawback is the river floods," explains owner Erica, who also owns an amphibious car, pictured above. "When we bought the house in 2000 we were told the flood risk was 1 in a 100 but we have flooded five times. Our living area sits well above the flood level however our undercroft garage and storage area floods dramatically..."

"We approached BAT Studio for a solution that could provide a safe refuge for bulky items during a flood but was also a useful space for the rest of the year."



The initial idea was for a floating structure, but during the design process, BAT Studio decided a lifting system would work better—when flood water receded, a floating structure could come to rest atop uneven debris and silt.

After a flood warning is issued, the owners pack their greenhouse with furniture and other possessions at risk from flood damage. Then they raise the structure via remote controls. It remains in a level raised position until owners consider it safe to be lowered.

The Greenhouse That Grows Legs was completed in Dec. 2015.

# 2016 CEE4880 Final Presentation Times (ENGR 302)

	W, 6 Apr	F, 8 Apr	W, 13 Apr	F, 15 Apr
3:30-3:50	Double C Eng.	LAST Inc. Eng.	Oljato Eng.	Bullcraft Eng.
4:00-4:20	MT <sup>2</sup>		<b>JBMK Eng.</b>	Steel Bridge
	W, 20 Apr	F, 22 Apr	W, 27 Apr	
3:30-3:50	Concrete Canoe	Storm Eng.	KJJC Eng.	
4:00-4:20	SBS Eng.	UES	Triple B	



Fin

5-Feb-16	F	Tech. Commun. in Eng. Project Conception & Design, & Marketing	- Dr Peralta PE - Ryan Jolley PE, Principal, Jones & DeMille (Ryanj@jonesanddemille.com)	
12-Feb-16	F	How teams chose projects, project overviews, # students & roles, advice	All 13 current CEE4880 team leaders; Dr Peralta PE	●To Canvas, submit pdf of typed BRIEF #1 on Ryan Jolley's presentation.
19-Feb-16	F	Distinguished Alumnus Lecture	Distinguished Alumnus. TBA	

### Modified from CEE 3880 Syllabus: Homework

- Each individual must submit a typed BRIEF in their own words concerning each speaker's presentation (No more than one page double spaced; do not skip additional space between paragraphs; indent paragraphs; Times New Roman, 12 pt; 1 inch borders all sides). **The BRIEF must initially provide who-what-when-where information. Then it must summarize the important information provided by the presenter. A final paragraph must indicate why the information is personally useful to the student.** The BRIEF will be due at the beginning of class the following week.

- Grading BRIEFs uses: ***TechWritingRubricV7c.pdf***
- iClicker Question 1: This BRIEF writing assignment will be the first time I have ever written a concise summary (< one page), of a presentation for someone else to read.
  - A. True
  - B. I have written one or two concise summaries or BRIEFs (not exceeding one page), previously.
  - C. I have written three or more concise summaries or BRIEFs (not exceeding one page), previously.
  - D. I have written one or two summaries of presentations for others to read, but the summaries were sometimes longer than one page.
  - E. I have written three or more summaries of presentations for others to read, but the summaries were sometimes longer than one page.

# Technical Communication in Engineering Project Conception, Design, and Marketing

Ryan Jolley PE

Principal, Jones & DeMille

[Ryanj@jonesanddemille.com](mailto:Ryanj@jonesanddemille.com)

Fin

# USU Sustainable Concrete

- Develop a sustainable concrete for use on USU projects.
- Incorporate recycled material in the new concrete.
- Reduced use of virgin materials
- Reduced use of cement
- Maintain acceptable strength and durability
- Work with local industry
- Work with Sustainability for USU
  - Apply for small grant!
- Reduce green house emissions by using locally available materials
- Become famous (in a nerdy engineer way)
- Contact: Dr. Marc Maguire [m.maguire@usu.edu](mailto:m.maguire@usu.edu)



# CEE4880 Team Leader 2-minute project presentations

Bullcraft

Double C Engineering

KJJC Eng (Eng InnovationConn)

Last Inc Engineering

JBMK

MT<sup>2</sup> Engineering

Navajo Mountain

SBS Engineering Solutions

Steel Bridge Design

Storm Engineering

Triple B Engineering

UES Produced Water

Treatment

USU Concrete Canoe

# 20160212 iClicker Question 1

1. From today's presentation, the most important idea or fact that I heard was:
  - A. How to select a team project
  - B. How to select team members
  - C. Warning about potential difficulty or problem
  - D. How to handle disagreements among groups
  - E. Other



Fin

# Project collaboration with Civic Engagement, Service Learning

Dr. Kate Stephens  
CESO Asst. Director

CANCELLED

## Blue Goes Green Grant Program

Logan Christian, Blue Goes Green Outreach Intern  
Olivia Binks, Blue Goes Green Committee  
Member

# Revised Schedule ...20160303f available in Canvas

12-Feb-16	F	How teams chose projects, project overviews, # students & roles, advice	All 13 current CEE4880 team leaders; Dr Peralta PE	●To Canvas, submit pdf of typed BRIEF #1 on Ryan Jolley's presentation.
19-Feb-16	F	Distinguished Alumnus Lecture	Distinguished Alumnus. TBA	
26-Feb-16	F	Tech writing comments Team building 101	Dr Peralta. Dr. Scott Bates, Associate VP Research (scott.bates@usu.edu)	●#Postponed To 18 Mar. To Canvas, submit pdf of typed BRIEF #2 on Distinguished Alumnus
4-Mar-16	F	Project collaboration with Civic Engagement, Service Learning,	Kate Stephens, CESO Asst. Dir.; Dr Peralta, PE	●#Postponed To 18 Mar. To Canvas, submit pdf of typed BRIEF #3 on Dr. Bates' 1st presentation.
11-Mar-16	F	<b>Spring Break!</b>	<b>No Class!</b>	<b>No Class!</b>
18-Mar-16	F	Proposal Rubric and Gantt Chart	Dr. Peralta PE	●#Rescheduled to Today. To Canvas, submit pdf of typed: BRIEF #2 on Distinguished Alumnus presentation & BRIEF #3 on Dr. Bates' 1st presentation.
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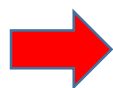
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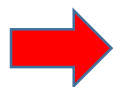
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[Download Dr. Peralta's class operations slides \(through 5 Feb\), here \(CEE3880\\_daily\\_2016](#)



[Download 2016-cee4880-2min Team Leader Presentations from 'Files\2016-cee4880-2min'](#)

## 2016 Assignment Instructions and Evaluation Forms

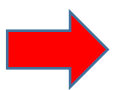
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[Download Technical Writing Rubric \(...vs7c\)](#)

**Download Project Proposal Instructions and Format (...vs10\_2016) :**

[\\*.docx file \(use part of it in proposal\)](#) and/or [\\*.pdf file \(for convenience\)](#)



**Download sample team project proposal from 'Files\Sample Student Submissions'**

• 2016 CEE4880 2-min. Team Leader Presentations

🏠 > [Sp16 CEE-3880-001](#) > [Files](#) > 2016-cee4880-2min Team Leader Presentation

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  - ➡ 2016-cee4880-2min Team Leader Pre
  - 📁 Old Presentation Videos
  - 📁 Project Ideas and Opportunities
  - 📁 Sample Student Submissions
  - 📁 unfiled

Name ▲



Concrete Canoe 2-min Presentation.



Double C 2 Minute Presentation for .



JBMK 2 min Presentation.pdf



KJJC ENGINEERING 2min.pdf

# Sample Student Submissions (proposal)

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▸ [unfiled](#)

Name ▲



[cee3880\\_2015-ProposalBulcraftGR.](#)

20160304

- Student Memorandum of Agreement (SMOA)
  - *CEEDS\_SMOA\_20160304wLogo.pdf*
  - All members of a team sign one SMOA.
  - Each team submits the signed SMOA with team project proposal
- Mentor Memorandum of Agreement (MMOA)
  - *CEEDS\_MMOA\_20160304b\_wLogo.pdf*
  - Each team gives a copy of their SMOA to each Mentor
  - Each team completes part of the MMOA and gives it to each Mentor.
  - Each team obtains one signed MMOA from each Mentor (at least from the Faculty Adviser and the External Professional Engineer).
  - Each team submits all signed MMOAs with team project proposal.
- BRIEF evaluations status

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[\\*.docx file \(use part of it in proposal\)](#)      and/or      [\\*.pdf file \(for convenience\).](#)

[Download sample team project proposal from 'Files\Sample Student Submissions'](#)

## **Memoranda of Agreement**

[Download editable Suggested Memorandum of Agreement for mentor and team signatures.](#)

[Download Memorandum of Agreement committing students on a team to work together and with Mentor.](#)

20160304



Fin

## CEE 3880 Project Proposals

### Projects

- Design modular, skid mounted, drinking water treatment plants for small remote locations. (~30 gpm)
- Proposal for 100 ft. diameter Solids Contact Clarifier with option for a pre-stressed concrete bridge.

### Engineering Disciplines Needed

- Structural, Hydraulics, Water Resources, Environmental
- Structural, Hydraulic, Water Resources

Presented by:

Parry Osborn, PE

801-290-1460

[posborn@westech-inc.com](mailto:posborn@westech-inc.com)

[www.westech-inc.com](http://www.westech-inc.com)



20160318

# Project Management

- Gantt Charts
- Critical Path Method (CPM)
- ***ProjManIntroCh14\_385\_CPM\_GANTT\_rcp3.pdf***
- Technical Writing Question and Answer