Happy Week 10 Mustangs!
As a reminder, this is the last week of academic instruction before finals NEXT week.

Included in this newsletter is information on AES’ happenings, job postings, class postings, and what students in the BRAE department have been doing over the quarter!

If you are not already, be sure to follow the BRAE Department and Ag Engineering Society on Social Media!

www.facebook.com/CalPolyBRAE/ or @CalPolyBRAE
www.facebook.com/Ag.Engr.Society/ or @Ag.Engr.Society

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AGRICULTURAL ENGINEERING SOCIETY

3RD GENERAL MEETING

NOVEMBER 29, 2017 • 6PM
BRAE LAB 4

SPECIAL GUEST SPEAKER:
EVAN THOMPSON, NELSON IRRIGATION

TRI TIP & CHEESY POTATOES

PRESENTATION OF 2016-17 PRESIDENT'S LIST RECIPIENTS

DONATIONS WILL BE PRESENTED TO GOD'S STOREHOUSE & ALONG COMES HOPE
2017-18 AES Officer Team

Emily Passey

Position: SWE Club Representative
Year: Junior
Major: BioResource and Agricultural Engineering
Hometown: Watsonville, CA

*Why did you choose Cal Poly?*
The hands-on and learn by doing part of Cal Poly was very appealing when comparing schools and trying to decide. It’s also just the right distance from home and I knew I would one day regret passing up this opportunity if I didn’t take it.

*Why did you apply to the BioResource and Agricultural Engineering Department?*
I actually switched into the major after my first quarter at Cal Poly. I transferred because I learned about BRAE during the summer before coming to college and knew I wanted to work with sustainability in agriculture so it seemed like the perfect fit.

*Why did you become involved with AES?*
I wanted to be more involved with the department and start giving back to the students and staff who have helped me get to this point in my college career.

*What has been your favorite class at Cal Poly?*
IME 142, Manufacturing Processing - Materials Joining. This class was so much fun and taught me useful skills that I will use for the rest of my life!

*What has been your favorite class in the BRAE department?*
BRAE 234, Introduction to Mechanical Systems in Agriculture. I’ve been looking forward to this class since I first looked at my flow chart because I am very interested in the mechanical side of agriculture.

*Where do you see yourself after ten years?*
I would like to take my acquired knowledge and share it with people who could truly benefit from it. I want to eventually travel to other countries that struggle with farming and teach them how to make their practices more efficient.

*What is one thing other members (faculty and students) should know about you?*
My family has an old car collection (1904 to 1939) that my grandpa started 72 years ago. It was a huge part of my life growing up and I hope that one day I am able to wrench on cars like my grandpa did.
2017-18 AES Officer Team

Luke Jackson

Position: ASABE Engineering Council Representative
Year: Sophomore
Major: BioResource and Agricultural Engineering
Hometown: Escalon, CA

Why did you choose Cal Poly?
I chose Cal Poly because I can receive a quality, hands on education from a university that is in a very beautiful location.

Why did you apply to the BioResource and Agricultural Engineering Department?
I applied to the BioResource and Agricultural Engineering Department because I am able to combine my love for the agriculture industry and my desire to be an engineer. Also, the staff within the department truly care for the students and their success.

Why did you become involved with AES?
I was led to become involved with AES because there are many great benefits to being a member of a professional club. Benefits such as networking and gaining leadership skills that will help me become successful in the agriculture industry. I chose to become an officer to help lead other students to realize the opportunities they have here at Cal Poly and within the department.

What has been your favorite part of AES so far?
My favorite part of AES is the network of people I have access to, which gives me endless opportunities. Another one of my favorite things of being in AES is that I can help others within the BRAE department.

What has been your favorite class in the BRAE department?
BRAE 151 CAD for Agricultural Engineering.

Where do you see yourself in five years?
In five years I see myself working towards becoming a mechanical engineer in the agriculture industry.

What is one thing other members (faculty and students) should know about you?
This last summer I was given the opportunity to drive Mustang Legacy at the Stanislaus County Fair Tractor Pull. It was my first time ever driving something with that much horsepower and pulled a distance of 291 feet.
## November/December Calendar

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This past Wednesday, Dr. Styles and the students in BRAE 236 went on a field trip to the Bartleson Ranch in Arroyo Grande, Calif. The visit to Bartleson Ranch focused on an irrigation evaluation on one of their lemon tree blocks. The block evaluated covers 11 acres and utilizes pressure compensating emitters for irrigation. Students asked the growers questions including soil and emitter types along with chemical additives. Following discussion, the students were able to view the storage reservoir.

The next part of the lab was split into two separate steps. Half of the students took pressure measurements around the block. Pressure is taken by punching a hole in the hose, sticking the pitot tip into the hose making sure it faces downstream, and completely fits the hole. After taking the pressure measurement, a goof plug is inserted to the hole. Other students measured emitter flow rates in three different locations. Location A was closest to the reservoir pump. There were five tests required here since emitters are pressure compensated. Location B was located near the middle of the block and only needed to measure 16 emitters. Location C was furthest downstream 28 emitters were measured. The flow rate was measured by placing catch cans under a set of emitters and letting them fill for 5 or 10 minutes, then poured into a graduated cylinder to measure volume.

Students presented the collected data noting the Global System DU measured 0.95 which is excellent. Students also noted issues including low pressures, some leaks, emitter plugging, and the lack of a flow meter.
Check out our Google calendar here!

Monday- Sustainability Task Force, Project Team Meetings
Tuesday- IMPACT
Friday - Tea Time is Back!, EWB Olympics

Sustainability Task Force is a group seeking to enhance Cal Poly's EWB Chapter through working on projects related to socio, economic, cross-generational and environmental sustainability. We want to ensure that our chapter is fulfilling its purpose of “equipping leaders to solve some of the world’s most pressing challenges”. The STF meets at 6pm every Monday in Building 10, room 225.

Project Meetings will be every Monday from 7:00-9:00pm!
Here are the team room locations:
Fiji: 10-225
Local Projects: 33-289
Thailand: 10-227
Nicaragua: 10-124
Malawi: 38-227

IMPACT meets every Tuesday 11:10-12:00pm in the library fishbowl 216R. IMPACT, Engineers Without Borders’ volunteering team, works with nonprofits across San Luis Obispo County to carry on the tradition of thinking globally and acting locally. IMPACT organizes volunteering events that unite EWB members and fellow Cal Poly students with local nonprofits dedicated to the community EWB Cal Poly knows and loves. In addition to future volunteering events, IMPACT is looking forward to building long term relationships in the community through a partner program between nonprofits and EWB project teams.

Tea Time! Come chat with the president and vice president over some tea about anything and everything. We’ll be on the 2nd floor of the library this Friday, close to Julians from 11am-12pm. We’d especially love to hear your thoughts about this quarter and get to know more of our members!

EWB Olympics! Battle of the brains and the brawns! There will be events like: Spikeball, Puzzles, Relay Races, and so much more! Coming to you Friday, December 1st at the WOW fields.

Announcements:

Fundraising Committee!
Do you like helping out your team? Come join us at the club-wide fundraising committee! All majors and levels of experience are welcome, we'll teach you everything you need to know! This is an awesome way to get more involved and potentially take on a leadership role. Interested? Fill out this snazzy form!
PAAC is Here!
Come for fun people, free pizza, and robots
We’ve got an exciting quarter and we hope you can be a part of it!
Meetings are Thursdays 6-8 pm in room 8A-3E

Raspberry Pi

8-3E (PC/Electronics Lab)

Taught by: PAAC Officers

agBot 2018!
This year, Cal Poly is participating in the Harvest Competition. If you are interested and want to learn more, click the link below.
If you want to be on the AgBot team, talk to Caleb Fink!
Check it out here!

New in Ag Automation

Pipe Inspection Robot
“This robot inspection system can access pipes that were previously accessible only by costly and disruptive excavation.”

Read the article here!
BRAE 428 – Agricultural Robotics and Automation

Winter 2018 (4 units)
Lecture - Tue./Thurs. 7:40 – 9:00 am, Lab - Tues. 12:10 – 3:00 pm

• Studying sensors and sensor data analysis techniques

• Applying On-Off control, PID control, and fuzzy logic control to agricultural control systems

• Developing real-world autonomous agricultural vehicles/robots

This course is an application of mechatronics principles for agricultural control systems and robots. This hands-on, project-oriented course covers sensors, electronics, mechanics, control theories and computer programming topics for agricultural robotic systems. This course is ideal for undergraduate and graduate students who want to gain mechatronics knowledge and enhance their critical thinking skills.

FOR MORE INFORMATION CONTACT: BO LIU / BLIU17@CAL POLY.EDU / BLDG 8-106 / 805-756-2384
AQUACULTURAL ENGINEERING
BRAE 470/471 - SELECTED ADVANCED TOPICS

Lecture: Mon. & Wed. 9:10-10:00 AM BRAE 470 2 Units
Lab: Tue. 3:10-6:00 PM BRAE 471 1 Unit

This course is an application of aquacultural engineering principles for freshwater and marine food production systems. Examination of system design constraints for maximizing productivity and minimizing environmental impacts, nutrient management, gas exchange and animal husbandry.

This course will cover learning outcomes including recognition of basic aquacultural engineering technologies, application of quantitative analytical processes for developing solutions, evaluation of aquaculture system designs within realistic constraints, analyzing research journals proposing different types of production systems, predicting biomass production applicabilities given input constraints, and explaining the interconnected systems nature of technology.

The course is ideal for undergraduate and graduate students interested in enhancing their critical thinking skills in advanced agricultural engineering topics.

BRAE 470 Aquacultural Engineering will be taught by Dr. Greg Schwartz, entailing two lectures and one laboratory (students must enroll in both BRAE 470 and BRAE 471) for 3 unit of upper division BRAE credit.
Software Test Technician

Sage Ag Inc is looking for an individual who is interested in hardware and software troubleshooting. You will be working as a part of a team to find and correct problems as they arise. Having the ability to communicate, take initiative, and present yourself professionally with a great attitude is a must.

Position Responsibilities:

- Assist project test lead in writing and executing test procedures
- Troubleshooting hardware and software issues
- Test setup
- Documentation of test issues with repeated steps
- Debug data
- Programming on agricultural equipment
- Ability to understand Python

Education:

Bachelor’s degree in Computer Engineering, Electrical Engineering or Software Engineering with a minimum GPA of 2.5.

Required Skills and Experience:

- Introductory computer programming (1 – 2 years)
- Basic test planning (1 – 2 years)
- Basic test procedures (1 – 2 years)
- Basic test cases (1 – 2 years)
- Strong communication skills
- Excellent problem solving skills
- Must be self-directed as you will be asked to do things and not given every detail about how to do them.

Desired Skills and Experience

- Advanced experience in scripting and programming
- Experience trouble shooting hardware and software systems
- Experience with large tractors and implements on CAN network
- Experience with guidance and vision systems

Contact Seth Williams
williamsseth@sageag.net
Career Opportunity

Winery Systems Design & Project Management

Seeking: Entry level design and project management of winery processing systems including receiving hoppers, screw conveyors, belt conveyors, vibratory conveyors and many other products for the wine industry.

About: Ogletree’s, Inc is a metal and equipment fabricator located in St. Helena in the heart of the Napa Valley since 1946 supplying the wine industry with design and fabrication services. Our work spans multiple industries including industrial, commercial and residential.

Candidate:
- BRAE Graduate
- Motivated and eager to learn
- Proficient in Solid Works
- Mechanical minded
- Good communication skills
- Exposure to or knowledge of metal fabrication practices

Description of Work:
- Design and detailing of shop fabrication drawings
- Spec and order equipment material, parts, motors, belts, etc
- Manage projects through fabrication and installation
- Plan and manage field installation
- Coordinate with customer throughout the duration of the project
- Coordinate other subcontractors or suppliers

Contact: Send resume to mattc@ogletreecorp.com
Precision Ag Test Technician

Sage Ag Inc is looking for an individual who is interested in working with Precision Ag equipment both in a field and lab environment. Position requires occasional travel within the United States. You will be working as a team with engineers and technicians on validation of precision farming equipment. Being from a farm or having experience running or working on large Ag equipment is preferred! However, having the ability to communicate, take initiative, and present yourself professionally with a great attitude is a must.

- Job location would be in the greater Ankeny, Iowa area.

Eduations:

Bachelor’s or Associates degree in Agriculture related studies or Software Engineering with a minimum GPA of 2.5.

Required Skills:

- Prior experience working with and operating farm machinery is necessary.
- Must be self-directed as you will be asked to do things and not given every detail about how to do them.
- Need to be out-going as you will meet many new people while working and must have the ability to communicate in various circumstances.
- Must be able to maintain a good attitude during busy times and long hours.
- Be able to present themselves professionally at all times.
- Able to work as a team with engineers and technicians.
- Familiarity with precision farming technologies.
- Ability to troubleshoot and resolve issues (remotely or onsite).
- Strong in troubleshooting and problem solving.
- Comfortable being around and running large machinery.
- Health benefits are included.
- Pay and bonuses depend on experience.

Please contact Seth Williams

williamsseth@sageag.net
True Leaf Farms, LLC

Job Title: **Industrial Engineer**
Division: True Leaf Farms
Department: Production

**GENERAL PURPOSE OF THE JOB:** Assist in the continuous improvement projects for expansion, reduction in labor, reduction in cost, and other items through engineering and project management.

**ESSENTIAL DUTIES AND RESPONSIBILITIES:**

- Ensure effective project coordination (Gantt charts, CAPEX files, etc.);
- Assure ongoing compliance with projects standards in group regulatory requirements;
- Efficient CAD, AutoCAD, 3D AutoCAD or Solidworks;
- Project Management Ability to plan and execute both small and mid-sized projects from start to finish
- Develop most efficient ways to use people, machines, materials, information, and energy to make a product or service.
- Perform mathematical calculations to determine manufacturing processes.
- Assist in financial planning and cost analysis.
- Design production planning and control systems.
- Design methods to ensure product quality.
- Understand hygienic design of equipment and facilities.
- Familiar with High/Low care, ready to eat (RTE), HACCP, traffic flow, and different zones of a food plant.
- Knowledge in electrical circuits.
- Understand flow of processing plants.

**SUPERVISORY RESPONSIBILITIES:**

None

**EDUCATION AND/OR EXPERIENCE:**

Bachelor's degree (B. S.) in engineering from four-year College or university and one to two years related experience and/or training.

**LANGUAGE SKILLS**

Ability to read, analyze, and interpret common scientific and technical journals, financial reports, and legal documents. Ability to respond to common inquiries or complaints from customers, regulatory agencies, or members of the business community. Ability to write speeches and articles for publication that conform to prescribed style and format. Ability to effectively present information to top management, public groups, and/or boards of directors.

**MATHEMATICAL SKILLS:**

Ability to work with mathematical concepts such as probability and statistical inference, and fundamentals of plane and solid geometry and trigonometry. Ability to apply concepts such as fractions, percentages, ratios, and proportions to practical situations.
Job Postings

Agricultural Engineer/Irrigation Specialist in Lodi, CA

We are a wholesale grower of trees, shrubs, and perennials with a 360 acre nursery in the Central Valley of California. Our company has been in business for 65 years and we have been growing plants in Lodi for 25 years. We are family owned and operated with 10 nurseries from Los Angeles to San Joaquin Counties.

We have three deep wells in Lodi and irrigate most of our plants with micro-emitters and some sprinklers. The irrigation layout was designed in 20-40 acre segments and is looped together. We are looking for someone to be our irrigation expert, to advise us and lead the implementation of the long-term improvement and modernization of our irrigation system in Lodi. Job responsibilities would entail irrigation mapping, irrigation scheduling optimization, improved water volume and pressure management, equipment modernization, energy and water conservation, and nutrient management.

Interested individuals may respond to Haydi Danielson at hdanielson@boethingtreeland.com or call her at (650)222-8308.

Part Time Agricultural Irrigation Specialist in Escondido, near San Diego, CA.

Irrigation specialist wanted to help maximize available water resources on a 250 acre avocado grove. If interested, contact Frank Pedace at ecadep@gmail.com

If interested in more job opportunities for the BRAE Department, check out https://brae.calpoly.edu/

CAL POLY
College of Agriculture, Food & Environmental Sciences
BioResource & Agricultural Engineering