

2018 Iowa STEM Teacher Externships

Externship Descriptions and Quotes



Julie Cuvelier

Doerfer/TDS Automation

Waterloo, IA



Julie's project involved the Organizational Chart of three locations of TDS Automation in Waverly, Waterloo, and Cedar Falls, Iowa. The task was to complete a formal job description in report format for all positions in the local branches of TDS. The project was from ground level where a template was shared to complete. This included skills, abilities, competencies, education levels, training certifications, and technical skills for each position in this organization. There was a report for each position filed with TDS for over 40 positions.



"My role as a teacher can be to create learning experiences to open the eyes of students to what they should know to be productive, efficient and sought after in the work world. I can also shed light on Manufacturing production and all its related careers to dispel the myths of choosing a career in this area."

--Julie Cuvelier, Business teacher at Cedar Falls High School

Doug Engel

Iowa DNR

Manchester, IA



Manchester Trout Hatchery produces all of the trout that are caught in the state of Iowa. Doug assisted hatchery staff with daily hatchery work such as taking Dissolved Oxygen readings, feeding trout, cleaning raceways, and stocking trout into various streams in the area. Many of the concepts that Doug learned will be able to be collaborated with his in 7th grade science class as they look at real world issues that face freshwater ecosystems.



"In my classroom I feel that I get students involved in many hands-on activities, but something that models what I did at the hatchery not only could work very well in a cross-curricular way but also could increase the level of problem solving and critical thinking that students will need to be successful in the future."

--Doug Engel, Science teacher at West Delaware Middle School in Manchester

Julie George

Rockwell Collins

Decorah, IA



Rockwell Collins is focused on improving up-time with test equipment creating increased reliability for their customers. A part of this effort is preventative maintenance, in which equipment used to test the quality of the avionics electronics is inspected regularly so they may be replaced or repaired before failing. When testing equipment fails, production stops because airplane safety is always the first priority. Julie worked with engineers to organize and prepare information about the test equipment which created a preventative maintenance schedule that will be loaded and tested in an online system.



“One big connection I see with 21st Century Skills and my externship is accountability and justification. Any changes Rockwell Collins makes must be reported to their clients. Sometimes changes must be certified by the FAA, which is a huge, expensive deal. Changes don't just happen because someone thinks they are a good deal. They have to be justified.”

--Julie George, Science teacher at West Central MS/HS in Maynard

Margaret Hogan

Dubuque County Conservation

Peosta, IA



Margaret worked on several projects at the Dubuque County Conservation Swiss Valley Nature Center and Preserve. The first project was to build bluebird houses and then monitoring them to increase the chances for bluebirds to use them. Another project that Margaret developed was about the geology and Native American history of the Swiss Valley area. Indian mounds, similar to the Effigy Mounds near Guttenberg, are found on the preserve along with several types of rocks and fossils in the area.



“Cooperation and collaboration are important when working with a colleague to produce the best camp possible with the available funds, and with the weather that is dealt with on a particular day. Additionally, teamwork and critical thinking skills are used daily to ensure that the public is provided with the best of park systems possible which is in the best interest of the public.”

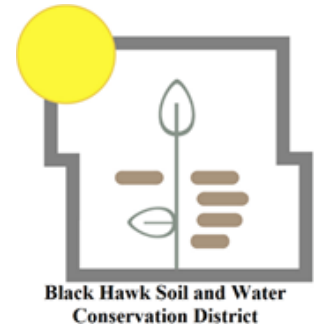
--Margaret Hogan, Science Teacher at Beckman Catholic High School in Dyersville

Kim Hurst

Black Hawk SWCD – Dry Run Creek

Waterloo, IA

Kim assisted with water monitoring activities with the Dry Run Creek Project and Miller Creek. She assisted with field surveying and observing the conservation planning to help farmers field run-off. Kim also observed the planning of rain gardens/ bioretention cells for a neighborhood in Cedar Falls. Kim assisted with a “grade school camper’s guide to camping” at George Wyth State Park. One of her responsibilities was to review existing mailing spreadsheets with the Dry Run and Miller Creek projects. Kim also took photos of Cedar Falls bioretention cells and updated the BHSWC website.



“We need to be teaching our students to communicate verbally as well as responding appropriately through emails/social media. We need to continue to have students ask questions and explore as they move into their careers. Employers want employees that can work in small groups, and be able to communicate.”

--Kim Hurst, Science Teacher at Bunker Middle School in Evansdale

Chelsea Kirschbaum

Mississippi River Museum and Aquarium

Dubuque, IA



Chelsea was partnered with the Education Outreach Coordinator to better improve the Museum's outreach programs. Chelsea's main job was working to improve the evaluation system for the outreach programs. The Museum wanted better qualitative data about their programs to make sure they were not only providing a fun experience, but also teaching new information and inspiring stewardship within their audiences. Chelsea also received training on how to handle turtles, helped with the freshwater mussel project, and co-taught some of the outreach programs.



"I have a stronger belief after this externship of just how important getting students out into the real world is. In any content or project that students are working with, why not find a connection out in the community and immerse the students in it?"

--Chelsea Kirschbaum, Math teacher at Mazzuchelli Catholic Middle School in Dubuque

Nathan Lahr

Rockwell Collins

Manchester, IA



Nate's main project was to help with the redesign of one of the final steps of one of their manufacturing processes that was relocated. With the relocation, the workers completing this step have to deal with every team's products and complete new tasks. These new tasks and new products created a bottleneck in the manufacturing process, and the workers responsible for this work overtime in an effort to keep the manufacturing process moving. Nate was put on a team to try and figure out ways to better educate the workers, speed up this process, and create a standard way this operation could be completed.



"I know the connections and learning that I had at Rockwell will be valuable in improving my teaching, and I am excited to bring a new perspective to my students this fall."

--Nate Lahr, Math teacher at West Delaware High School

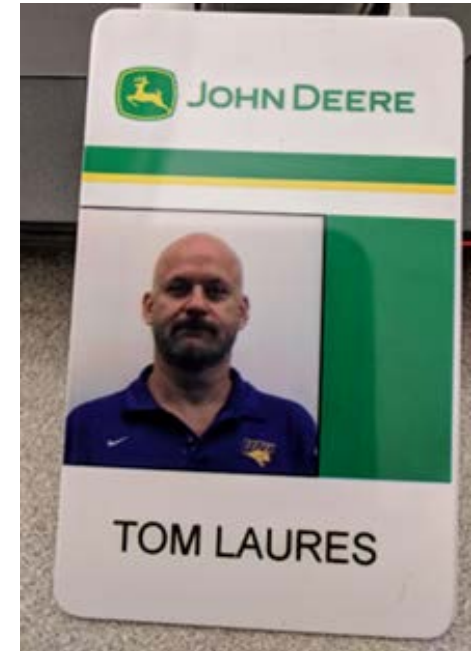
Tom Laures

John Deere PEC

Waterloo, IA



Tom's main job was to help design engineers assess the needs of technicians who assemble the test areas, making sure that the layout that had been developed and that the materials required for the testing were present. This required tremendous amounts of communication between the mechanical engineers who did the design, the design engineers who facilitate the layout, and the technicians who actually implement the layout. He also performed many checks daily with several technicians to "help put out fires" as they arose.



"I was impressed with the amount of teamwork that it takes to make this department work. My eyes opened to the communication and collaboration aspect of this position. This is going to be a definite focus for my upcoming year."

--Tom Laures, Math teacher at Union High School

Brooke Lodge

Art's Way Scientific

Monona, IA



Brooke Lodge spent her summer at Art's Way Scientific, which builds custom designed laboratories and hog/calf care buildings. Her first project consisted of establishing a standard operating procedure for the Structural Insulate Panels and resin/fiberglass/epoxy gel-coat used to insulate the interior of their hog/calf care buildings. The procedure will be used to train new employees and presented to third-party inspectors. Brooke was able to apply her organizational skills when creating the standard operating procedure and use her expertise in mathematics to create standard guidelines for the mixtures of their products and a reasonable timeline to complete the process.



"I would say the most impactful part of this externship was the real world experience to 21st century skills. I am great at understanding my math curriculum but in the past I have found it really hard to stress communication, reliability, and trustworthiness. I find these concepts to be very important but I didn't know how to really connect it to something the students could relate to. Now I feel like I have experience at a job that my students will find interesting and I can tie in these concepts that I find to be very important."

-- Brooke Lodge, Math teacher at North Fayette Valley High School

Greg Moglestad

John Deere Dubuque Works

Dubuque, IA



Greg worked with a new assembly line module at John Deere this summer. The goal is to create a more efficient version of what has been currently done, and placing it in the new line. The main focus of Greg's activities were with John Deere's Skidsteer operations. Many STEM related activities are going on in the Dubuque Works facility with the new models of skidsteers rolling out. His daily tasks were broken up into John Deere's engineering process to continually improve quality and safety.



"I have been in meetings with partners in India and the people we are working with are from all over the country and developed world. I am going to continue to look for ways to foster a bigger picture feeling to lessons over the coming weeks. Hopefully that will lead to something I will be able to implement in the new Engineering courses next year."

--Greg Moglestad, Engineering and Industrial Technology teacher at Hempstead High School



Paul Mugan

Iowa DNR Sweet Marsh

Tripoli, IA

Paul's task was to assist the DNR workers in managing the land to optimize its use for hunting and fishing. Ample rain has required them to regularly adjust marsh water levels. Maintaining the correct water levels in the marsh fosters conditions for the growth of natural and cultivated vegetation. This provides needed habitat for animals that hunters enjoy. Management is constant as precipitation has caused river levels to change significantly.



"The full-time DNR workers are highly knowledgeable about the multitude of details that go into the hydrology, agriculture, and conservation that go along with maintaining such a wild environment. However, it is their ability to work together that transforms that knowledge into action."

--Paul Mugan, Life Science teacher at Waverly-Shell Rock High School

Luke Pisarik

John Deere Dubuque Works

Dubuque, IA



The big project that Luke was assigned was to take the 104, 105, 106, 107, and 745 boom coupler setup/weld areas and design the material setup/layout and flow. This includes the setup of parts carts, cart locations, determining the distance from the parts and fixtures and reducing the size of the existing area by more than 200 square feet. This process should increase efficiency and reduce the cost of the union operator per part, which increases the production output.



“My time at John Deere flew by along with the summer. The most impactful aspect of my externship was understanding how many different things went into writing a standard. A standard is a documented outline of how a job is to be done and how long it should take for the operator to do the job each time. Each sub component has a standard attached to each aspect of the final project and one can calculate project cost accurately from this detailed outline.”

--Luke Pisarik, Industrial Technology Teacher, Cascade Jr/Sr High School

Bob Plagge

John Deere TCAO

Waterloo, IA



The main project Bob worked on at John Deere Tractor Cab Assembly was to reduce fasteners at each workstation of the assembly line. He did this by looking at the different fasteners and trying to group similar parts that could work. Examples would be if they are using 20mm and 30mm, could a 20mm serve both positions just as well?



"Spending time at John Deere in Waterloo, I have noticed that computer skills are needed for students and teachers. Some the people here are on their computer all day. They look up materials and find where these items are at that point in time. The Deere employees use technology to communicate to different departments and one another to find information. Our students need to start learning how to investigate and research using technology and communication."

--Bob Plagge, Industrial Technology Teacher, Waterloo Community Schools

Kathy Quinlan

Jackson County Conservation

Maquoketa, IA



Kathy worked on so many things! She had an opportunity to plan a K-1 daytime camp and design a new brochure for a local landmark. The conservation received a grant to complete the brochure and it is difficult for them to find time to complete it since they have so many other projects going on, so she jumped at the opportunity to help them with this project.



"I am amazed at how much of the engineering standards are used in the work force! No wonder they are such an important part of the science standards. I definitely need to do more with them in my classroom!"

--Kathy Quinlan, Science teacher at Maquoketa High School

Alex Ruehlow

Geater Machining & Manufacturing

Independence, IA

Alex worked in the machining side of the factory, mostly with the CNC machinists, and pallet changing machines. His main job was to setup and machine parts to predetermined specifications, read and follow control plans for each part, use precision measuring equipment to make sure the part is within the given tolerances according to the control plans, and also deburr every part to get exact uniform finishes on each part. Through this he has learned many new skills about machining and the production of parts. He also learned how important a control plan is to follow to get the best quality.



“In my classroom I am going to try and use more on the job type of training when it comes to projects so that students need to absorb the information that I give them as well as try and problem solve through the situation in order to accomplish the task. ”

--Alex Ruehlow, Industrial Tech & Engineering teacher at Jesup High School

Rick Samuelson

Clearline Industries

Traer, IA



The first project Rick worked on was writing an introductory manual for new employees when they come to the plant. This will cover the definition of terms, types of products and production process for their four main product lines. They wanted to make a video to go along that would supplement the information in the manual. Time permitting, the second project was to build a shipping and receiving station where the products are shipped in and out of the plant.

“Clearline Industries and I have already talked about how we can use them as a model and resource for my manufacturing class. The building is only one-half mile from the school and can be an easy trip for quest speakers, material testing, field trips and a number of examples to help students understand what a career in in manufacturing would be like. ”

--Rick Samuelson, Industrial Technology teacher at North Tama CSD

Liz Siepker

Winneshiek County Conservation

Fort Atkinson, IA



During her time at Winneshiek County Conservation, Liz worked on educational/informational panels and displays. Her main topic was lead poisoning in wildlife but she also worked on pollinator panels. Besides the educational projects, she did surveys, helped with resource management projects, and workshops with students throughout the weeks. Every day and every week was something different which was a great exposure to the diversity of the work that is completed there as well as ideas for the classroom.



"The connection with local resources and community employers can be of great benefit in my classroom. I am already working on pulling together activities and resources that I've experienced through my externship."

--Liz Siepker, Science teacher at Cresco High School

Tristan Sikkema

Rockwell Collins

Bellevue, IA

**Rockwell
Collins**

Tristan worked on creating kiosks so that the lead operators can keep tabs on their lines production. He set up the kiosks to the Line operators specs on what they want to show up. So what they have is a touch screen monitor that they will be able to pull up set documents that are especially for their group. He had to communicate to each lead to see what they want put on, where it should be put or easy of use for them. After he set that up, Tristan trained them on how to use it.



“While working at Rockwell, there are many different things that students need to learn. Being able to communicate, work as a team, be responsible and accountable.”

--Tristan Sikkema, Industrial Tech & Engineering teacher at Easton Valley Schools

Brady Swenson

Iowa DNR George Wyth State Park

Waterloo, IA



Brady's main focus this summer was on learning what it is that the DNR does to maintain the park as well as what their role is in the community. One project that has been helpful in learning about the park's history as well as finding out more about the current and future projects was writing the Iowa State Park Interpretive Plan for George Wyth. Brady's involvement with this report was helpful to the park staff and informational at the same time. Another part of Brady's time at George Wyth was spent working with a summer camp called School of the Wild.



"Many times we teachers are more focused on the amount of time that projects take and think we need to make it easy for students so we can move forward. Solving problems isn't an instant gratification thing and kids need to learn to have the attention span and patience to work on problems until they are solved. "

--Brady Swenson, Science teacher at North Tama CSD

Rob Welter

Iowa DNR George Wyth State Park

Waterloo, IA



While working as an extern at George Wyth State Park, Rob assisted in a variety of tasks. He and another extern planned educational activities for an Outdoor Summer Camp for elementary students. He also helped to plan and design signs for educational use within the park. These signs were designed to inform users of natural features of the park and of general rules to be obeyed while boating, fishing, and other forms of recreation. The signs were also designed to be accessible to the many cultural groups that utilize the park. In addition to working at the summer camp and creating signs, Rob also assisted in developing a plan to reclaim portions of the park to natural prairie.



“Teaching out-of-doors is incredibly different than teaching in a classroom - especially when you only see the kids for 6 hours, then they are gone forever. Building relationships was incredibly difficult. But, the same principles seemed to apply - find out your students' interests, take frequent breaks, and be kind. ”

--Rob Welter, Science teacher at Holmes Junior High School in Cedar Falls



Melissa Whitney

Dubuque County Conservation

Peosta, IA

Melissa Whitney participated in an externship program through Dubuque County Conservation. During her time there, she worked on a few different projects with the county. One project was to monitor Blue Bird houses at a few different sites around Dubuque County to try to help the blue bird population increase in prairie ecosystems. Another project was completing a species index for butterflies at Swiss Valley and Whitewater Canyon to see the biodiversity at some popular hiking areas. There are also a few other small projects that she worked on including creating a promotional video of the summer camps offered through the Nature Center and updating some information on websites.



"I want to make students realize that its not always about coming up with the "correct" answer, but about solving a problem and thinking critically. And, if they don't get the answer right away, there is no shame in trying again and changing something about your process to come up with a different solution."

--Melissa Whitney, Science teacher at Dubuque Senior High School