## **Task: UGRADS registration**

### **Overview**

The UnderGraduate Research and Design Symposium (UGRADS), which is more commonly known in Engineering as "the Capstone Conference", is the formal culmination of the Engineering Capstone Design sequence for all of the NAU Engineering disciplines (CS, EE, ME, ENE, CE). This is where all teams will formally and publicly present their project results, as well as provide a poster & demo session for follow-up demos and questions. In fact, this has been so popular that the rest of NAU has adopted it as well...although they just do the poster session part for students doing some kind of research project.

This task is simple and involves you simply registering for the UGRADS conference. This happens early in the semester, since all of the registered participants and projects appear in the formal printed program for the event (nice souvenir for you, works nice in your job portfolio), and all of this takes time to put together.

The only challenging parts of this task are:

* + Get the name of your project and spellings of teammate/sponsor/mentor names right. I'm only half-kidding here; this has happened too many times.
  + Identify your sponsor and his/her organization. See below.
  + Develop a nice "project abstract" that concisely and attractively describes your project. This is a true skill that you should **definitely** pay some attention to. You'll have about a short paragraph (some word limit) to say what your project is about, say something about how you are tackling it, and convince people that it will change the world. Doing this effectively in a short paragraph is a real challenge!

### **The Assignment**

This task is very simple:

* 1. Visit [the UGRADS registration site](https://nau.edu/undergraduate-research/undergraduate-symposium-eligibility/) and start the registration process. Your goal at this point is just to figure out what this year's length limit (usually #words/lines) is for the abstract. Note it down.
  2. Develop a draft of your project abstract, then work as a team to hone and refine it.
  3. Present the draft project abstract to your team mentor for review/improvements. Be sure to mention what the relevant length limit is!
  4. Arrive at an "approved" version of your abstract. That means either: a hardcopy of the abstract with your mentor having written "approved" and signing it off; or an email containing the final version of your abstract, showing where your client replied something like "Looks great, I approve this as your final abstract".
  5. Go to [the UGRADS registration site](https://nau.edu/undergraduate-research/undergraduate-symposium-eligibility/), and register your team/project for the UGRADS conference. Make sure you get all spellings and titles correct, it's super embarrassing when those errors appear in the program! Take a screen snapshot of the submission confirmation page to give your mentor.

### **How to fill out the online form on the UGRADS site**

(they change the form in small ways each year, ask Igor if you have questions)

The abstract is just one of the pieces of information you'll be asked to provide; the UGRADS online form asks for a bunch of information needed to appropriately categorize your contribution within the overall UGRADS program. All of these questions should be pretty self-explanatory, but here are a few pointers:

* + **Name:** The name of the member submitting this form.
  + **Co-Presenters:** Here you list your team members:
    - Alyssa Ortiz
    - Tyler Chapp
    - Andrew Ortega
    - Payton Watts
  + **NAU Email Address**: ao994@nau.edu
  + **I am a/an:** check undergraduate student
  + **Location/Learning Mode**: Mountain Campus
  + **Major(s)/Area of Study**: just put "B.S. in Computer Science."
  + **Mentor/instructor's first and last name:** The name of the Capstone Organizer (Dr. Igor Steinmacher, at the time of this writing),.
  + **Email address of mentor/instructor:** igor.steinmacher@nau.edu
  + **Additional Mentors:** Check "Yes" and enter the (**correctly spelled!**) name of your team mentor: Scott LaRocca
  + **Presentation Type:** All teams will be required to do an oral presentation and a poster session. Thus "Poster and Oral Presentation" is the correct choice.
  + **College or Program**: Select the College of Informatics, Engineering, and Applied Sciences
  + **Primary Presenter**: This question is a weird fit for us Capstone since we have teams... while many other student researchers from other NAU departments will be solo. Don't worry, all of you will be listed in the program. Just put down whoever is filling the form for the team, i.e., who the system should send emails regarding the submission. Unless there is a specific reason to do otherwise, this should be the team lead: Alyssa Ortiz
  + **Preferred Presentation Time:** This is irrelevant as Capstone presentations are scheduled separately from other UGRADS things anyway. Just put "Afternoon".
  + **Special Needs:** This asks about tables, electricity, etc. Usually, CS Capstones have none, i.e., your laptop (on battery power) at the poster presentation to show off your product is usually all that's needed. If you feel you need something else for your particular project, i.e., you need power and table space to show off your robot gadget, go ahead and ask for it.
  + **Class requirement:** Yes, this presentation is a \*requirement\* for CS486C
  + **Funding Source:** Usually nothing here. If your Capstone client provided money or equipment, go ahead and check "Capstone Project Sponsor". Otherwise, leave it blank.
  + **Title:** Make this title descriptive of your actual project, i.e., it does NOT have to be the title of the project description you started with (though it could be). Make it something that reflects what the project has turned out to be and, preferably, something that sounds attractive and exciting, i.e., would get a reader to come to your talk! For instance, a project that had an original project description title of "Cardiovascular Simulator" might have evolved into an exciting product called CardioSim and you could entitle the presentation "CardioSim: An interactive system for teaching cardiovascular dynamics to young learners". Sell your product!
  + **Abstract:** This is the key piece! You have just 250 words to convince a reader to come see your presentation. Generally, you want to pack your complete "project story" into 250 words. This is hard and will require some effort. It is a good idea to write it without regard to length first to get the story/flow right. Then check the length and go back and trim/rewrite until it fits. The flow is the usual "story":
    - 1-2 sentences that make the "big picture" motivator for your project, e.g., "10,000 people in the U.S. die in car wrecks each year due to dozing off while driving; these numbers are rising in recent months as more and more people are exhausted by their capstone projects"
    - Then say something about what need this generates, e.g., "What is needed is a technical solution that is simple, easy to use, and highly effective in preventing driving accidents due to dozing off".
    - Now that you have convinced readers that there's a problem that needs solving, sketch out your solution, e.g., "In this project, we have developed a sophisticated smartphone app to serve as a deployment and control platform for a clever wearable device developed by our client that detects dozing off in real-time"
    - Then give some tasty-sounding detail: "The device takes the form of an attractive pendant worn around the neck, but tracks body movements, position, and head angle, and relays these data in real-time to our mobile app via low-power Bluetooth. In our app, we implement an AI-driven algorithm that we have shown to be 90% accurate in identifying dozing-off behaviors automatically; the app then sounds an alarm to alert the driver".
    - Finally, if there's room, say something about future impact, e.g., "Based on our successful development of this prototype, our client plans to seek further funding to fully develop and market our prototype, resulting in a product that could potentially save thousands of lives."
    - Make this interesting enough to bring people to your talk. Getting this right is a real skill, and that is why I ask that you work with your mentor to create a really nice quality abstract.
  + **PDF of Poster Presentation (Required):** This can be uploaded later. In fact, you should wait until you have your final results to have the poster :-)
  + **Video (Recommended)**: Same as the poster. You may upload it afterward (by Apr. 19)
  + **Oral Presentation Upload:** Same.
  + Answer the following questions as you wish (but you have to acknowledge that you are aware of the deadline)
  + **Consent to Print in Program.** This is legal baloney that they are required to ask. The whole point here is to advertise your fantastic project, so you want to see it printed up.
  + **DON'T FORGET.** Some people hit "Save" at the end. This just saves this form. To submit, you must hit "Save and Finalize". Note that you can come back and edit info at any point later, no stress.

### **What to turn in**

* Turn in the printed summary of your registration.
* This is easy to generate: after you submit, you can see your application in the list of "My Applications" within the UGRADS submission management page. It is here that you can go back in and "edit" your application if you need to do so later. You'll also notice a "print" link next to your application. Click that and you can generate/save a PDF of your application that shows your answers to all questions. Make sure this all looks good, then give it to your team mentor for review/grading.

**Title**: FireFlight - Interactive Mapping Application to Visualize Bird Populations After Wildfires

**UGRADS Registration: Abstract Draft**

With wildfires growing increasingly frequent due to climate change, the need to assess ecosystem health quickly and accurately has never been more urgent. Birds, which serve as great indicator species, provide deep insight into environmental recovery post-fire. Current US Forest Service methods and practices for evaluating ecosystem health remain cumbersome and labor-intensive. Our project, FireFlight, introduces a comprehensive, user-friendly web application designed to streamline the process of monitoring predicted bird populations in areas affected by wildfires for our USFS and NAU clients. This application allows forest service researchers to effortlessly query and visualize predicted bird presence over various regions. Users can filter data by species or region, export detailed results, and view dynamic heat maps. The intuitive interface ensures ease of navigation with features like zoomable maps, interactive querying options, and support for non-technical users. The platform is engineered for future maintenance with clear documentation and a modular codebase, enabling simplified updates and scalability. With the oversight of the USDA Forest Service, our innovative solution empowers decision-makers with real-time insights, enhancing their ability to manage and rehabilitate wildfire-impacted ecosystems. With FireFlight’s real-time mapping and data export capabilities, our solution not only provides immediate value to field researchers but also has the potential to inform policy decisions and optimize resource allocation for effective post-fire recovery efforts.