



### SAE Baja 24 Team Charter

ME476C: Capstone I

Signature Cover Page

Each team member will copy the following statement in their own handwriting (LEGIBLY) in one of the designated areas below:

**I agree to do an equal amount of work in the team. I understand that my grade will reflect my effort in the team.**

Print Name: Evan Kamp

Signature: *[Handwritten Signature]*

I agree to do an equal amount of work in the team. I understand that my grade will reflect my effort in the team.

Print Name: Donovan Parker

Signature: *[Handwritten Signature]*

I agree to do an equal amount of work in the team. I understand that my grade will reflect my effort in the team.

Print Name: Ryan Fitzpatrick

Signature: *[Handwritten Signature]*

I agree to do an equal amount of work in the team. I understand that my grade will reflect my effort in the team.

Print Name: Cooper Williams

Signature: *[Handwritten Signature]*

I agree to do an equal amount of work in the team. I understand that my grade will reflect my effort in the team.

Print Name: Seth DeLuca

Signature: Seth DeLuca

I agree to do an equal amount of work on the team. I understand that my grade will reflect my work in the team.

Print Name: Lars Jensen

Signature: Lars Jensen

I agree to do an equal amount of work on the team. I understand that my grade will reflect my work in the team.

Print Name: Joey Barta

Signature: Joey Barta

I agree to do an equal amount of work on the team. I agree that my grade will reflect my work in the team.

Print Name: Jarrett Berger

Signature: Jarrett Berger

I agree to do an equal amount of work on the team. I agree that my grade will reflect my work in the team.

Print Name: Abraham Plis

Signature: Abraham Plis

I agree to do an equal amount of work on the team.  
I agree that my grade will reflect my work in the team.

Print Name: Henry Van Zandt

Signature: 

I agree to do an equal amount of work on the team. I agree that my grade will reflect my work in the team.

Print Name: Gabriel Rabanal

Signature: 

I agree to do an equal amount of work on the team. I understand that my grade will reflect my effort in the team.

Print Name: Bryce Fennell

Signature: 

I agree to do an equal amount of work on the team. I understand that my grade will reflect my effort in the team.

Print Name: Antonio Sagara

Signature: 

I agree to do an equal amount of work on the team. I understand that my grade will reflect my effort in the team.

To: David Willy

From: SAE Baja 24

Date: 09/08/2023

Re: Team Charter

## **1.0 Team Purpose**

The reason for this team's formation is to build a successful racing vehicle while applying all aspects of mechanical design and project planning in a senior-level engineering capstone course. The team will work effectively to deliver a well-designed car that meets the capstone requirements and complies with all SAE rules. The car is expected to be finished in its entirety by late April to attend the 2024 SAE Baja competition in Gorman, California. To meet technical requirements and remain competitive amongst other teams, every aspect of the vehicle is to be strategically engineered while making use of all available resources in the NAU Machine Shop.

The stakeholders for this project include Professor David Willy for capstone and Perry Wood for manufacturing. In addition to these stakeholders, the potential sponsors supporting the project for 2024 are also involved in seeing a successful vehicle created. Sponsors are critical to delivering a high-performance vehicle this year as the team is required to fundraise the costs of vehicle construction and to facilitate travel to competition. Most importantly, the team will be attending competition on behalf of NAU which requires professional conduct and purpose driven behavior to represent the university properly.

## **2.0 Team Goals**

To be successful, the team will constantly need to be reminded of performance goals throughout the project. The team's final designs will be based off numerical results and testing rather than opinions or assumptions. It is imperative that the team works as a cohesive unit with all members striving to address all issues with professionalism and efficiency. The manufacturing of the Baja car components should be done as much as possible in-house to reduce costs and minimize lead times. As a functional baseline, the team's goal is to design and build a vehicle that will pass technical inspection and perform well amongst other Baja groups at competition. Satisfactory performance in this instance is defined as placing amongst the top 10 teams in at least one event during competition.

Each team member will complete all assigned tasks by the established deadline. All deadlines will be discussed as a team and require agreement amongst the applicable sub-team(s). This ensures that the project will be completed on time and will foster cohesive progression in all sub-teams. To keep up with the demanding nature of this project, all members will be expected to produce quality work and documentation as part of effective engineering communication. The

team is collectively aiming for A's in each project deliverable to reflect the shared commitment of all team members.

### 3.0 Team Members Personalities/Roles/Responsibilities

With the full team being comprised of 13 members, there is a diverse mix of personality types and technical/non-technical skills. This variety will allow for many different perspectives on this project and will lead to a more well-rounded team environment. As such, certain members may be better suited for roles over others. The team got together to catalogue all relevant skills and personality styles, which helped us select these roles (administrative & technical) for the project group moving forward in accordance with rubric specifications. This information is presented below in *Table 1*.

*Table 1: Team Member Information*

<b>Team Member</b>	<b>Sub-Team</b>	<b>Role/Responsibility</b>	<b>Personality &amp; Relevant Skills</b>
Henry Van Zuyle	Drivetrain	Manufacturing Engineer/Sub-team lead	ENTP-A Welding, Machining, Experience with this project.
Evan Kamp	Front	Suspension Simulation Engineer	ENTJ-A ME286L taken Project Management Workplace Management
Cooper Williams	Frame	Sub-team lead	INFJ-T Welding, Fiberglass Layup
Bryce Fennell	Front	CAD Engineer/Sub-team lead	ENTJ-A, Suspension Design
Donovan Parker	Drivetrain	Drivetrain System Integration	ENTJ-A Heavy coding and SolidWorks experience
Joey Barta	Rear	Test Engineer/Sound Specialist	ENFJ-T RC racing/suspension experience, SOLIDWORKS, Automotive
Gabriel Rabanal	Frame	Logistics Manager	INTJ, CAD, Club Management, 3-D Printing, basic CNC milling

Ryan Fitzpatrick	Drivetrain	Rear Wheel Drive Integration	Automotive Experience, CAD, Time Management
Abraham Plis	Front	Project Manager	ENFJ-T, Time Management, Automotive Experience
Lars Jensen	Rear	Financial Manager	ENTJ, CAD, Accounting, Manufacturing
Jarett Berger	Drivetrain	Brake Testing	ISFJ-A, Creativity
Seth Deluca	Rear	Sub-team lead/Website Design	ESFJ-A Creative, Research, Proactive
Antonio Sagaral	Frame	Ergonomics Integration	CAD, Technical Writing, Manufacturing

## 4.0 Ground Rules

The group has come to consensus that this capstone will be a big undertaking and will require every member to be proactive and diligent. To be successful, the group got together to discuss some ground rules for the project. These rules will allow everyone to practice engagement and professionalism while operating in a technical environment.

When working on a project, it is important to remember that every person has the same goal in mind. To reach these goals everyone needs to contribute and, more importantly, everyone needs to be willing to contribute. The team has decided that each person will contribute 9 hours a week of strong work. The capstone class meeting hours are mandatory. The machine shop will be open most weekdays from 2:00 pm to 5:00 pm for whatever the team/sub-teams may need. The team has also agreed to a recurring meeting time of 8:00 pm to 10:00 pm on Thursday nights. This is where the team will discuss system integration between sub-teams and address any concerns that arise with regards to scheduling/administrative duties.

As well as being engaged, team members must also always act with a professional demeanor. When a new idea arises, the team will support said idea and handle the discussions respectfully. If a member or sub-team has an issue (technical and interpersonal) these will be discussed early in team meetings. Dissenting views will be handled with kindness. Acting as a professional also requires members to not micromanage other members within the team. Each member must have a proactive attitude allowing for cross-functional collaboration. Meaning, if one sub-team is behind, be willing to offer some help and be willing to accept help if you end up behind yourself. The team also discussed some technical rules that will allow system integration during the production and assembly phase to be effortless. When designing parts, all elements will be

designed with manufacturability in mind. If two ideas arise, the decision will be made to whoever can back the idea with numerical data or reasonable justification. The group has chosen to use the imperial system for every measurement for this project's duration to allow for design continuity.

By having all team members agree to these ground rules, everyone will be held to the same standards throughout the lifecycle of the project. Peer reviews will be essential in communicating the functional performance of all team members and allowing constructive feedback to strengthen the team's operation.

## **5.0 Potential Barriers and Coping Strategies**

When working on a project of this scale with a large group of people, there are many problems that may arise throughout the year. It is important to understand that the team will not always completely agree with a decision or an idea. Finding a compromise is not always possible and this may lead to a disgruntled team member. The team must find ways to make sure that everyone is heard and given the opportunity to speak their mind.

Throughout the project, personal disagreements between members may arise. When this happens, the issue must be brought up to the team as quickly as possible so that a resolution can be made before the issue begins affecting the overall progress of the project. As seen collectively by all group members in the past, people may also lose interest in the project or begin to fall behind in their work and not put in the required effort for the success of the project. When this happens, the team needs to first recognize it is happening, and have a discussion with this person to find out potential reasons for their lack of effort and to determine a plan to quickly get them back on track and engaged.

Every team member has their own schedule and, as such, may not always align with everyone else's. This can lead to difficulties in finding times for team meetings, manufacturing and other things that require multiple people to be working at the same time. An availability spreadsheet has been created where everyone has put in their schedules. The team will reference this document to create meeting times, fabrication times, etc.