

GROUP PROPOSAL

SCENARIOS

NOTE: Most Requests for Proposals (RFPs) include contact information for a point person whom interested applicants can reach out to with questions about the proposal review process, or to ask for additional information to help draft applications. For the purpose of this project, please envision your instructor as the contact person for each scenario, and contact her accordingly with questions or requests for additional information.

SCENARIO 1: AERO/ASTRO ENGINEERING & TECHNOLOGY

You and your teammates are researchers with the Purdue University Student Space Programs Lab (SSPL), a working group dedicated to providing undergraduate students with the opportunity to conduct research devoted to space flight projects. Students affiliated with the lab work alongside faculty and industry partners to design, fabricate, and integrate space systems. In the past, Purdue students involved with SSPL have delivered payloads for multiple high-altitude balloons, microgravity experiments, sounding rockets, and space shuttle “getaway specials.” You can envision yourselves as having any role as researchers in this lab for the purpose of this scenario.



NASA is re-launching the getaway special (GAS) program—which had a 20-year history of hosting small experiments on space shuttle missions—with the International Space Station. The program is soliciting proposals for experiments of scientific, technical, educational, and/or commercial value from individuals and groups. There are no stringent requirements to qualify for participation in the program, but payloads must fit into NASA standard GAS containers (a closed cylinder with an inner diameter of 19.75 inches and 28.25 inches in height) and weigh no more than 200 pounds. The payloads must be self-powered, because experiments cannot draw on the ISS’ electrical system. Unlike previous GAS experiments, payloads involved in the ISS-GAS program can incorporate more substantial crew involvement, because astronauts’ stays on the ISS (6–7 months, on average) are typically much longer than previous shuttle missions (which lasted 10–16 days), enabling a greater focus on overseeing and conducting experiments.

Proposals for the ISS-GAS program should be 5–7 single-spaced pages (plus any relevant attachments or appendices) and include an introduction and conclusion, as well as a project description, team credentials, a timeline, and references. It’s especially important that project teams situate their proposed experiment within current aerospace research/trends, as well as the previous tradition of GAS experiments. Proposals should be addressed to Program Director Dr. Debora Finkelstein.

SCENARIO 2: COMPUTER SCIENCE & CYBERSECURITY



SmartINDY, a home construction company, is building a new state-of-the-art suburban community outside of Indianapolis. This subdivision is designed entirely of smart houses—that is, buildings that use internet-connected devices to monitor and manage appliances and systems. This smart community, named Millennium North, is designed with energy-efficient technologies, materials, and appliances, including a solar rooftop and in-home battery storage in every home. Additional smart home features such as voice-activated security, smart locks, lights, cameras, appliances, and garage door control will be available across single-family dwellings, duplexes, condominiums, and luxury apartments.

SmartINDY has released an RFP for a smartphone app that Millennium North residents can use to monitor and manage their smart devices remotely. This app would need to work across multiple smartphone operating systems and enable residents to manage and secure their in-home devices while at work, traveling, etc. SmartINDY would also like to use the app to gather data and analytics on device use by individual and by area, in order to optimize service for residents and to plan for their next smart neighborhood development. The ability to gather anonymized usage data while maintaining individual residents' privacy is paramount.

Your team works for Modular Systems, a full-service mobile application development studio. You specialize in end-to-end production for iOS and Android devices. The studio's founder and CEO, Elliot Burgh, has asked your team of developers, coders, and project managers to draft a proposal for app development and support for SmartINDY's Millennium North neighborhood, highlighting how Modular Systems is uniquely prepared to address this project's needs.

Proposals for the Millennium North app project should be 5–7 single-spaced pages (plus any relevant attachments or appendices) and include an introduction and conclusion, as well as a project description, team credentials, a timeline and budget, and references. It's especially important that project teams balance app functionality with privacy and security considerations, and demonstrate an understanding of current trends in cybersecurity and user experience (UX). Proposals should be addressed to SmartINDY's Chief Information Officer, Troy Fiske.

SCENARIO 3: EDUCATION

A new educational management organization focused on revitalizing teaching in at-risk neighborhoods, TransformU, is opening a private high school (grades 9–12) in Marion County, IN—the most racially and socio-economically diverse county in the state. The school will be named C.J. Walker Prep, after Madam C.J. Walker, America's first female self-made millionaire, who acquired her



wealth through developing cosmetics and hair products for Black women. The school's stated mission is to establish for its students a fundamentally sound education and to instill in them a strong sense of academic preparedness, cultural connectedness, and the desire to succeed in becoming the architects of their futures.

TransformU is seeking proposals for curriculum development for C.J. Walker Prep's nine main departments: mathematics, science, computing & technology, English & humanities, history & social studies, languages, racial & ethnic studies, visual & performing arts, and health & physical education. Highly qualified Indiana teachers, scholars, and educational administrators will be paid on contract to create cutting-edge, age-appropriate, and social justice-grounded curriculum for the school's first class of students—100 incoming students each in grades 9–12, scheduled to begin in Fall 2021. Proposals for curriculum development should outline the potential courses across different grade and skill levels, processes for selecting textbooks and other materials, as well as teacher preparation and professional development.

You can envision yourself as a team of teachers or researchers for this scenario. Proposals for the C.J. Walker Prep project should focus on curriculum development for one of the school's nine educational departments. Proposals should be 5–7 single spaced pages (plus any relevant attachments or appendices) and include an introduction and conclusion, as well as a project description, team credentials, and timeline and budget, and references. It is especially important that project teams consider and acknowledge both federal and state-level standards for age-appropriate curriculum and certification, as well as current trends in lessons and pedagogy. Additionally, given that the school aims for educational transformation for the racial and ethnic minorities of Marion County's most at-risk neighborhoods, attention should be paid to the needs of these communities as well. Proposals should be addressed to C.J. Walker Prep's inaugural executive director, Dr. Irene Piercy.

SCENARIO 4: BIOMEDICAL & MECHANICAL ENGINEERING



In the wake of COVID-19, public gathering places like retail stores, movie theaters, hair salons, concert venues, and restaurants are undergoing dramatic changes to maintain the health and safety of both customers and employees. One such place experiencing major changes is amusement parks. How do you keep a fun experience for guests while still preventing the spread of disease? How do you modify cleaning and sanitizing procedures while still protecting the health of employees, without necessitating overtime or hazard pay?

The Walt Disney Company has circulated a RFP among its previous partners and affiliates in light of this global crisis, asking for help re-imagining the onboarding and offboarding process for its

Walt Disney World (WDW) attractions in Orlando, Florida, to keep its 58 million yearly visitors safe, and prevent a COVID-19 super-spreading event. You and your team represent project managers and engineers for QualGard, a global medical and safety technology company that creates protection and monitoring solutions for a variety of industries, including food service, government, and the energy sector. QualGard has collaborated with Disney before on disaster preparedness (for hurricanes and potential terrorism threats), as well as safe food preparation in the WDW Orlando parks and resorts. The concerns listed by Disney in the RFP include guests waiting in crowded queues, seating at attractions like film shows and live theater, guests entering and exiting attractions, and disinfecting high-touch surfaces. Important considerations include maintaining the “Disney Look” and magic of the Disney theme park experience, as well as adhering to CDC recommendations for cleaning, disinfecting, and PPE use.

Proposals for the WDW COVID-19 Hazard Mitigation project should be 5–7 single-spaced pages (plus any relevant attachments or appendices) and include an introduction and conclusion, as well as a project description, team credentials, timeline and budget, and references. It is especially important that proposals demonstrate the team’s understanding of the risks posed by COVID-19 and current research on risk mitigation, as well as the variety of ways that these hazards could affect WDW Orlando’s diverse set of attractions. Proposals should be addressed to Walt Disney World’s Occupational Safety and Health Administration Director, Brian Wisniewski, and Imagineering Project Coordinator, Wyatt Jenkins.

SCENARIO 5: AVIATION TECHNOLOGY & MANAGEMENT



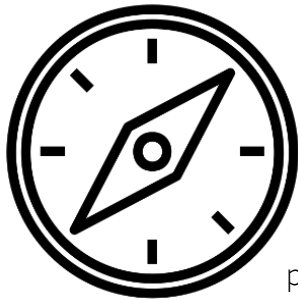
In a time of unprecedented economic volatility, even multi-millionaires are looking to cut costs and take up side hustles to make some extra money. Entrepreneur and investor Francois Fabron, a multinational mogul whose net worth is close to \$1 billion USD, is looking to outsource management of his personal collection of luxury private jets, including a Citation CJ3, Hawker 800XP, and a Bombardier Challenger 850 Learjet.

Your team manages Flighteur, a mid-sized (~30,000 flight hours per year) private jet charter company. Flighteur has over 60 base locations, employs over 1000 flight crew and support personnel, and has its own fleet of 50 aircraft in addition to managing over 150 private aircraft. The company boasts “personalized aircraft management,” increasing owners’ revenue streams and offering sustainable service and vendor relationships. Working with Fabron poses an incredible opportunity to Flighteur, since you know he has friends in high places and will recommend you to his circle of wealthy and well-connected peers. Additionally, his luxury crafts will elevate your offerings for charter customers.

The private jet charter market is highly segmented, with the top 25 companies only accounting for about 30% of flight hours, so it's important that companies submitting proposals to Fabron differentiate themselves from the competition and pay close attention to his needs as a plane owner and businessman. Fabron is interested in offsetting the costs of ownership and maintenance of his small fleet, as well as maintaining availability of his planes for his own personal use. Additionally, he has concerns about safety, security, and maintaining his planes' pristine condition.

Proposals for charter management of Fabron's fleet should be 5–7 single-spaced pages (plus any relevant attachments or appendices) and include an introduction and conclusion, as well as a project description, team credentials, timeline and budget, and references. It is especially important that these proposals demonstrate Flighteur's unique qualifications for chartering and maintaining such crafts. Proposals should be addressed to Fabron's executive assistant, Clotilde Bisset.

SCENARIO 6: CHOOSE YOUR OWN ADVENTURE



None of these scenarios speaking to you? Don't feel like they will be useful? Feel like you can design a scenario that will be more interesting to respond to?

Let your instructor know by email ASAP and she'll work together with your group to create a different scenario for you to write a 5–7 page proposal for (plus any relevant attachments or appendices).

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