



**2022–2023 JUMP into STEM
Challenge Requirements and Rules**

Updated: August 15, 2022

Summary of Important Dates

Please note the following milestones for the 2022–2023 JUMP into STEM Competition:

- **August 15, 2022:** The three 2022–2023 JUMP into STEM Challenges are posted to the [JUMP into STEM website](#). The Challenge Requirements and Rules document will also be posted, and students can begin posting their submissions.
- **November 11, 2022, at 5 p.m. EST:** Challenges close and judging begins. No new submissions will be accepted after 5 p.m. EST. Internship applications must be finished and submitted through Zintellect. Please note that professor recommendations will be due one week after this deadline.
- **December 5, 2022:** Finalists will be notified and invited to attend the Final Competition at National Renewable Energy Laboratory (NREL) in January for one last round of competition.
- **December 9, 2022, 5 p.m. EST:** Finalists must confirm with event organizers if they will attend the Final Competition at NREL in January.
- **January 26–27, 2023:** The Final Competition will be held in person at NREL, and finalist teams will have the opportunity to present their submissions. JUMP into STEM may offer an in-person only competition. Winners will be awarded with 2023 summer internships at NREL, the Oak Ridge National Laboratory (ORNL), and the Pacific Northwest National Laboratory (PNNL). Internships are subject to site access requirements and availability of funding. For more information, see the [JUMP into STEM Building Technologies Internship Program \(DOE-JUMPintoSTEM-BTIP-2023\)](#) eligibility requirements and procedures.

Tasks Overview

- Read through the Challenges as well as the Challenge Requirements and Rules document, and then form a team of 2 to 4 students. Ideally teams are multidisciplinary.
- Review [past winning ideas](#), [student resources](#), and the [JUMP into STEM website](#).
- Select one Challenge for your submission.
- Develop a team name and mission statement.
- Watch the recorded webinar on jumpintostem.org/students/ to learn how to post a good submission.
- Engage with professors and industry mentors to gather information and valuable feedback.
- Study the resources provided for your selected Challenge.
- Develop a problem statement that focuses on a specific aspect of the Challenge or a specific stakeholder group affected by the Challenge.
- Create and detail an idea compliant with the requirements provided.
- Write a 5 to 7 page narrative that responds to the Challenge. Use the [template](#) for guidance.
- Submit your team's proposed solution narrative on the [JUMP into STEM website](#).
- Complete the [internship application](#) through Zintellect.
- Consult the [JUMP into STEM website](#) and check your email for updates and announcements.
- Submit all materials prior to the deadlines.

For communications and questions, email the organizers at jump@ornl.gov.

Submission Paper

The required file naming conventions and due dates are listed below.

Deliverable	File Format	File Name	Due Date
Idea Submission	PDF	JUMP_[SHORT COLLEGIATE INSTITUTION NAME]_SUBMISSION_[SUBMISSION DATE (YYYY-MM-DD)].[EXTENSION]	Nov. 11, 2022, 5 p.m. ET
Final Competition Presentation	PowerPoint or PDF	JUMP_[SHORT COLLEGIATE INSTITUTION NAME]_FINAL_[SUBMISSION DATE (YYYY-MM-DD)].[EXTENSION]	Jan. 19, 2023, 5 p.m. ET

Instructions for Adding Team Submissions to the JUMP into STEM Website

Please submit the following information to the corresponding submission prompts on jumpintostem.org. The abstract and image for Challenge winners and Challenge finalists will be published on the JUMP into STEM website.

<ul style="list-style-type: none">o Abstract (up to 250 words): Please include an abstract of your project. The abstract may be displayed on the jumpintostem.org website.
<ul style="list-style-type: none">o Image (file size limit: 5 MB; filetype: .jpg): Please submit an image that represents your project. This can be a photo or a figure from your paper. The image may be displayed on the jumpintostem.org website.

Submission Paper Instructions

Your submission paper communicates the salient points of the project to all participants. A successful submission should meet the following requirements:

Submission Paper Format Requirements

<ul style="list-style-type: none">o Paper size: 8.5 inches × 11 inches
<ul style="list-style-type: none">o Font: Single-spaced, 11-point font for body text (diagrams may have smaller fonts)
<ul style="list-style-type: none">o Borders: 0.5-inch minimum, except for tables, figures, and images
<ul style="list-style-type: none">o Maximum page length: 7 pages for main content (unlimited appendix content)
<ul style="list-style-type: none">o File format: Single PDF
<ul style="list-style-type: none">o File size: Less than 300 MB
<ul style="list-style-type: none">o File name: JUMP_[SHORT COLLEGIATE INSTITUTION NAME]_SUBMISSION_[SUBMISSION DATE (YYYY-MM-DD)].[EXTENSION]

Submission Paper Content Requirements

Project Team Background (up to 2 pages, single-spaced)	
○	Project name, team name, and collegiate institution(s)
○	Team mission statement
○	A short biography for each team member; this should include information such as major, level (freshman, sophomore, junior, senior, graduate), and other relevant background information such as experience with building science, future career goals, and formative experiences that shaped each individual's contribution to the Challenge.
○	Diversity statement (minimum 1 paragraph, 5 to 7 sentences): One of JUMP into STEM's key objectives is to encourage diversity of thought and background in students entering the building science industry. There is a diversity gap in STEM, meaning that certain groups are underrepresented or have been historically excluded from STEM fields. These groups include, but are not limited to, those based on race, ethnicity, and gender—and this gap needs to be addressed. Diversity of thought can be achieved through teams consisting of students from different majors and minors. If there are barriers that affect the racial, ethnic, and/or gender breakdown of your team, please elaborate. As part of the next generation of building science thought leaders and researchers, you have a unique opportunity to influence this industry. The diversity statement is your opportunity to describe your team's diversity of background and thought, both generally and as applicable to your chosen Challenge.
Project Challenge Submission (up to 5 pages, single-spaced)	
○	Write a 1- to 2-paragraph problem statement , focusing on a specific aspect of the problem and the stakeholder groups affected by or involved in the problem. The stakeholder groups can be from a specific location, socioeconomic status, age, or demographic (e.g., people living in subsidized housing). The problem statement should clearly identify the injustices (energy or environmental) that the stakeholder group experiences. Students should consider social implications related to the identified injustices.
○	Develop and describe a novel solution that addresses or solves the specific problem from your problem statement. The solution must be technical and also include one or more of the following components, as appropriate: economic, policy, commercialization, codes and standards, and/or other.
○	Address the requirements for your selected Challenge as written in the Challenge description. Include graphs, figures, and photos. Discuss the feasibility of your solution and how it will impact your stakeholders, especially those who have experienced the injustices that you described in your problem statement.
○	Develop a technology-to-market plan . A technology-to-market plan describes how the team envisions bringing its idea from concept to installation on real buildings, or integrated into the design of real buildings, and includes a cost/benefit analysis.

<ul style="list-style-type: none"> • The cost/benefit analysis does not need to be exhaustive and should include comparing the solution to current or existing technologies or practices. Benefits, such as building energy reductions and improved occupant health or productivity, should be evaluated. • The plan should also discuss which key stakeholder(s) should be involved to commercialize the technology and then sell and install the technologies with your target market(s).
<ul style="list-style-type: none"> ○ Perform a market adoption barrier analysis. The team should identify at least one key market adoption barrier for implementation and specifically address how the proposed solution will overcome that barrier. <ul style="list-style-type: none"> • Barriers should align with key stakeholder(s) identified by the student team.
<ul style="list-style-type: none"> ○ Include references. References will not count toward the 5-page maximum.
<p>Appendix (optional, no page limit)</p>
<ul style="list-style-type: none"> ○ Teams may wish to add an appendix. This is optional and might not be reviewed by the judges.
<ul style="list-style-type: none"> ○ The appendix has no page limit.

Challenge Evaluation Criteria

Ideas should represent advanced critical thinking toward a technical, innovative, diverse, and applicable solution with demonstrated presentation expertise and knowledge. Selection of the Challenge winning team and the Challenge finalist teams will be determined by looking at total scores PLUS a discussion review during the judge panel's merit review meeting. The highest score does not necessarily mean that the team is a Challenge winner, though scores heavily contribute to the selection of the winner. Judges will complete one form below for each idea submitted:

Solution (weight: 40%)	Possible Score
Solution Please rate the solution and its ability to address the problem statement. The solution must be a technical solution and include one or more of the following components, as appropriate: economic, policy, commercialization, codes and standards, or other. How well does the proposed solution address the problem and stakeholder needs?	0–10
Feasibility Please rate the solution's overall feasibility and potential, including its viability. For example, solutions that are not technically possible or that lack a technical feasibility discussion will receive lower scores.	0–10
Novelty Please rate the originality and creativity of the solution and how significant the contribution will be to the building industry.	0–10
Impact Please rate the overall potential impact of the team's solution. For example, can the solution be extended to communities, similar stakeholder groups, or a nationwide solution?	0–10
Subtotal	Up to 40
Market Readiness (weight: 30%)	Possible Score
Market Characterization Please rate the team's understanding of the market and the stakeholder group(s) identified by the problem statement.	0–10
Technology-to-Market Please rate the team's proposed plan to bring the solution from a paper concept to installation or integration with real buildings or building designs, and the team's cost/benefit analysis.	0–10
Overcoming Adoption Barriers Please rate the team's identification of and plan for overcoming adoption barriers for proposed solution. This includes how the solution will create value, both economic and other, to drive industry adoption.	0–10
Subtotal	Up to 30

Diversity and Justice (weight: 20%)	Possible Score
Diversity Statement and Project Team Background Please rate how well the team addresses the diversity gap in the building science industry in its diversity statement. This includes how the team brings perspectives from a variety of backgrounds, including students from groups that are underrepresented in science, technology, engineering, and math (STEM). This also includes students from many different disciplines—ensuring diversity of thought. See the diversity statement in the Challenge requirements. This also includes how well the teams connect their mission statement and biographies to their problem statement.	0–10
Environmental and Energy Justice Please rate how well the proposed solution addresses environmental and energy justice.	0–10
Subtotal	Up to 20
Submission (weight: 10%)	Possible Score
Submission Requirements Please rate how well the student team followed all submission requirements. See the submission paper requirements section of this rules document and at the bottom of each Challenge description.	0–10
Subtotal	Up to 10
Total	Up to 100

Final Competition Presentation Instructions

Judges will review team submissions and select finalists, who will be notified of their advancement in the competition by December 5, 2022. In order to be selected as a finalist, team members must be eligible for the JUMP into STEM internship and should have APPLIED for the internship on the [Zintellect website](#) by the submission due date, November 11, 2022, at 5 p.m. ET. **Individuals and partial teams are eligible to participate in the final competition.** Only team members with a completed Zintellect application will be selected as finalists and invited to present at the final competition. Finalist designation means that the participant has accepted an offer to present.

Finalist teams will then have until December 9, 2022, to notify JUMP into STEM organizers whether they will attend the last stage of the competition on January 26–27, 2023, at NREL. JUMP into STEM may offer an in-person only competition. The Final Competition will include a round of presentations from each finalist team to a panel of judges. At the conclusion of the event, winners of the summer 2023, 10-week paid internships at NREL, ORNL, or PNNL will be announced. (Internships are subject to site access requirements and availability of funding.) The internship offers are for summer 2023. Once awarded, students are responsible for securing their approval to work. (Work approval impacts students who are foreign nationals.) For more information, see the [JUMP into STEM Building Technologies Internship Program \(DOE-JUMPintoSTEM-BTIP-2023\)](#)

Each team will have 15 minutes for its presentation. After team presentations, there will be a 5-minute Q&A session with the judges. Team concepts and presentations will be evaluated using slightly different criteria than the Challenge evaluation criteria. The criteria for the Final Competition can be found on Final Competition Evaluation Criteria section of this document.

Finalists must send their Final Competition presentations to jump@ornl.gov by 5 p.m. ET, Thursday, January 19, 2023. JUMP into STEM organizers will confirm receipt of presentations.

Final Competition Presentation Requirements

<input type="checkbox"/> File format: PowerPoint or PDF
<input type="checkbox"/> File size: Less than 100 MB
<input type="checkbox"/> File name: JUMP_[SHORT COLLEGIATE INSTITUTION NAME]_FINAL_[SUBMISSION DATE (YYYY-MM-DD)].[EXTENSION]
<input type="checkbox"/> Maximum presentation length: 15 minutes
<input type="checkbox"/> Must be prepared to answer detailed questions about team's idea/solution
<input type="checkbox"/> Must cover all technical requirements for selected Challenge in presentation
<input type="checkbox"/> Submit presentation file to organizers no later than 5 p.m. ET on January 19, 2023

Final Competition Evaluation Criteria

The Final Competition evaluation criteria are slightly different than the Challenge evaluation criteria. Please review the criteria detailed below. Selection of the JUMP into STEM final competition winning team(s) (internship winners) will be determined by looking at total scores PLUS a discussion review during the judge panel's merit review meeting. The highest score does not necessarily mean that the team will win, though scores heavily contribute to the selection of the winner(s).

Solution (weight: 30%)	Possible Score
Solution Please rate the solution and its ability to address the problem statement. The solution must be a technical solution and include one or more of the following components, as appropriate: economic, policy, commercialization, codes and standards, or other. How well does the proposed solution address the problem and stakeholder needs?	0–10
Feasibility Please rate the solution's overall feasibility and potential, including its viability. For example, solutions that are not technically possible or that lack a technical feasibility discussion will receive lower scores.	0–10
Novelty Please rate the originality and creativity of the solution and how significant the contribution will be to the building industry.	0–10
Impact Please rate the overall potential impact of the team's solution. For example, can the solution be extended to communities, similar stakeholder groups, or a nationwide solution?	0–10
Weighted Subtotal	Up to 30
Market Readiness (weight: 25%)	Possible Score
Market Characterization Please rate the team's understanding of the market and the stakeholder group(s) identified by the problem statement.	0–10
Technology-to-Market Please rate the team's proposed plan to bring the solution from a paper concept to installation or integration with real buildings or building designs, and the team's cost/benefit analysis.	0–10
Overcoming Adoption Barriers Please rate the team's identification of and plan for overcoming adoption barriers for the proposed solution. This includes how the solution will create value, both economic and other, to drive industry adoption.	0–10
Weighted Subtotal	Up to 25
Diversity and Justice (weight: 20%)	Possible Score

Multidisciplinary Team approach Please rate how the team utilized information from many different disciplines to come up with a viable solution. This includes the team's diversity of thought.	0–10
Environmental and Energy Justice Please rate how well the proposed solution addresses environmental and energy justice.	0–10
Subtotal	Up to 20
Presentation (weight: 25%)	Possible Score
Effective delivery of ideas Please rate how well the team conveyed its ideas during its presentation. Include how well the team engaged with and persuaded the audience.	0–10
Presentation preparation Please rate how prepared the team was for its presentation, including evaluation of its presentation materials and its professionalism.	0–10
Question & Answers Please rate how well the team responded to questions from the judges.	0–10
Weighted Subtotal	Up to 25
Weighted Total	Up to 100

Internship Application Instructions for Students Who Want to Present at the Final Competition

Selected finalists will give presentations at the JUMP into STEM Final Competition. A panel of judges will select winners, who will be awarded with summer 2023 internships at either NREL, ORNL, or PNNL. All participating team members must submit an internship application at the same time as their paper submission to be considered.

Internship Application Requirements

<ul style="list-style-type: none">○ Create a profile on Zintellect.com. Use an email that you will check often.
<ul style="list-style-type: none">○ Applicants must be currently enrolled in an undergraduate or graduate degree-seeking program at a regionally accredited U.S. college or university at time of application. Students graduating in fall of 2022 or later are eligible for the internship. Applicants must have a cumulative minimum grade point average of 3.0 on a 4.0 scale as of November 11, 2022.
<ul style="list-style-type: none">○ Applicants must be at least 18 years old.
<ul style="list-style-type: none">○ Applicants must have medical insurance effective for entire term of appointment.
<ul style="list-style-type: none">○ Applicants must have one academic or professional recommendation. Submit the name and contact information of one reference into the Zintellect system. The letters of recommendation are due by November 18, 2022. Reference must submit their evaluation and/or letter through Zintellect.
<ul style="list-style-type: none">○ Applicants must submit all required application essays and answer all required questions.
<ul style="list-style-type: none">○ Applicants must submit academic transcripts.
<ul style="list-style-type: none">○ Applicants must provide proof of relevant citizenship/immigration status. If a selected applicant is not a U.S. citizen, the applicant must obtain and show proof of a valid visa status allowing us to pay a stipend. Once an offer has been made, the Oak Ridge Institute for Science and Education (ORISE) Immigration Office may guide the process of obtaining appropriate immigration documents. Participants who are foreign nationals must also receive approval and clearance from the U.S. Department of Energy; this process is initiated by the hosting national laboratory and could take more than ten weeks.
<ul style="list-style-type: none">○ Internship will be the summer of 2023 only. Once awarded, students are responsible for securing their approval to work summer of 2023.
<ul style="list-style-type: none">○ Selected participants will be required to submit a technical report or poster at the end of the appointment period.