



**2020–2021 JUMP into STEM  
Challenge Requirements and Rules**

Updated: December 21, 2020

## Summary of Important Dates

Please note the following key milestones for the 2020–2021 JUMP into STEM competition:

- **August 3, 2020:** The three 2020–2021 JUMP into STEM Challenges are released and posted to the [JUMP into STEM website](#). The Challenge Requirements and Rules documents will also be posted to the website, and students can begin posting their submissions.
- **September 16, 2020, 4 p.m. Eastern Time (ET):** All competing students are encouraged to attend the webinar on how to post a successful submission. Note that this webinar will be recorded and made available for review at a later date.
- **November 13, 2020, 11:59 p.m. ET:** Challenges close and no new submissions will be accepted after 11:59 p.m. ET. Students must also have started their internship applications through Zintellect when they submit their challenge ideas. Judging will begin.
- **November 20, 2020, 11:59 p.m. ET:** Internship applications must be finished and submitted through Zintellect.
- **December 7, 2020:** Finalists will be notified and invited to attend the event at the National Renewable Energy Laboratory (NREL) in January for one last round of competition.
- **December 14, 2020, 11:59 p.m. ET:** Finalists must reply to event organizers by this time whether they will be attending the virtual event in January for the last round of the competition.
- **January 28–29, 2021:** The final event will be virtual, and finalist teams will have the opportunity to present on their submissions. Winners will be awarded with 2021 summer internships at either Oak Ridge National Laboratory (ORNL) or NREL. Internships subject to site access requirements and availability of funding. See the specific [Building Technologies Internship Program \(BTIP\)](#) eligibility requirements and procedures.)

## Tasks Overview

- Read through the Challenges as well as the Challenge Requirements and Rules document, and then form a multidisciplinary team (2 to 4 students).
- Review [past winning ideas](#), [academic resources](#), and the [JUMP into STEM website](#) to inform efforts.
- Select one Challenge to submit a response to.
- Develop a team name and mission statement.
- Join the September webinar to learn how to post a good submission.
- Engage with professors and industry mentors to supplement existing knowledge or provide valued feedback.
- Study the resources provided the selected Challenge.
- Create and detail an idea compliant with the requirements provided.
- Complete and post your team's submission on the [JUMP into STEM website](#).
- Along with your paper submission, complete the internship application.
- Consult the [JUMP into STEM website](#) and your personal email for updates and announcements.
- Submit all materials prior to the deadlines.

For communications and questions, email the organizers. The JUMP into STEM email is [jump@ornl.gov](mailto:jump@ornl.gov).

## Challenge Submission

The necessary JUMP into STEM Challenge submission file naming convention and due date is listed below.

**Table 1. File Naming Convention and Due Date**

Deliverable	Required Content	File Name	Due Date
Idea Submission	PDF	JUMP_[SHORT COLLEGIATE INSTITUTION NAME]_SUBMISSION_[SUBMISSION DATE (YYYY-MM-DD)].[EXTENSION]	Nov. 13, 2020, 11:59 p.m. ET
Final Event Presentation	PowerPoint or PDF	JUMP_[SHORT COLLEGIATE INSTITUTION NAME]_FINAL_[SUBMISSION DATE (YYYY-MM-DD)].[EXTENSION]	Jan. 26, 2021, 5 p.m. ET

### *Instructions for Adding Team Submissions to JUMP into STEM Website*

Winning teams will be recognized on the JUMP into STEM website. In order to showcase these teams, you must submit the following to the corresponding submission prompts on [jumpintostem.org](http://jumpintostem.org) from your PDF submission.

<input type="checkbox"/> <b>Abstract:</b> Please include an abstract of your project. The abstract will be displayed on the JUMP into STEM website. Your abstract can be up to 250 words.
<input type="checkbox"/> <b>Image:</b> Please submit an image (file type: .jpg, up to 5 MB) that represents your project. This can be a photo or a figure from your paper. The image will be displayed on the JUMP into STEM website.

### *Submission Paper Instructions*

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

#### ***Submission Paper Format Requirements***

<input type="checkbox"/> Paper size: Standard 8.5 inches (in.) × 11 in.
<input type="checkbox"/> Formatting: Single-spaced, 11-point font for body text (diagrams may have smaller fonts)
<input type="checkbox"/> Borders: 0.5-in. minimum, except for tables, figures, and images
<input type="checkbox"/> Maximum page length for main content: Seven (unlimited appendix content)
<input type="checkbox"/> File type: Single PDF
<input type="checkbox"/> File size: Less than 300 MB
<input type="checkbox"/> File name: JUMP_[SHORT COLLEGIATE INSTITUTION NAME]_SUBMISSION_[SUBMISSION DATE (YYYY-MM-DD)].[EXTENSION]

### *Submission Paper Content Requirements*

<b>Project Team Background (two-page maximum)</b>
<input type="checkbox"/> List the project name, team name, and collegiate institution(s) in the header.
<input type="checkbox"/> Add the team's mission statement.
<input type="checkbox"/> Add a short biography for each team member (teams must be 2-4 students). Include information such as major, education level (freshman, sophomore, junior, senior, graduate), and other relevant background information. Relevant information includes experiences with building science, future career goals, and formative experiences that shaped each individual's contribution to the challenge.
<input type="checkbox"/> Diversity statement (one paragraph, 5-7 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 the industry, meaning that it is underrepresented by certain groups—including, but 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. As part of the next generation of building science thought leaders and researchers, you have the unique opportunity to influence this industry. Please describe how your team is contributing to diversity in building science.
<b>Project Challenge Submission (five-page maximum)</b>
<input type="checkbox"/> Select one of the three challenges to address.
<input type="checkbox"/> Investigate the <b>background</b> of the challenge and consider related stakeholders. Stakeholders are those who are affected by the problem as well as those who may have decision-making power and provide solutions (technical or nontechnical, such as policies). Include any market stakeholders, such as manufacturers.
<input type="checkbox"/> Write a one- to two-paragraph <b>problem statement</b> , focusing on a specific aspect of the problem and a stakeholder group affected by the problem. The stakeholder group can be from a specific location, socioeconomic status, age, or demographic (e.g., people living in subsidized housing).
<input type="checkbox"/> Write a <b>technical solution or process</b> that addresses or solves the specific problem from your problem statement. Address the requirements for your selected challenge. Include graphs, figures, and photos.
<input type="checkbox"/> Develop a one- to two-paragraph <b>technology-to-market plan</b> that describes how the team envisions bringing their idea from paper concept to being installed on real buildings or integrated into the design of real buildings. Include cost and benefit analyses in the technology-to-market plan. This does not need to be exhaustive and should focus on comparing the solution to current or existing practices. Benefits such as building energy reductions and improved occupant health or productivity should be evaluated.
<b>Appendix (optional, no page limit)</b>
<input type="checkbox"/> Teams may wish to add an appendix. This is optional and might not be reviewed by the judges.

## Challenge Evaluation Criteria

Ideas should represent advanced critical thinking toward a technical, innovative, diverse, and applicable solution with demonstrated presentation expertise and knowledge.

Judges will complete one form below for each idea submitted:

**Table 2. Challenge Evaluation Criteria**

<b>Technical (40% of score)</b>	
1-10	Technical solution or process: how well the proposed technology addresses the problem.
1-10	Technical feasibility: the solution’s technical feasibility/potential, including the viability of the proposed technology. For example, solutions that are not technically possible or that lack a technical feasibility discussion will receive lower scores.
1-10	Technology-to-market plan: the proposed technology-to-market plan, including the team’s cost/benefit analysis of the solution. How technically feasible is the proposed plan to bring the solution from a paper concept to installation or integration with real buildings or building designs? Costs and benefits can include both monetary and non-monetary evaluations.
1-10	Technical response: how well the team’s written submission responds to the technical requests of the challenge.
<b>Innovation (30% of score)</b>	
1-10	Market characterization and readiness for proposed idea: team’s description and understanding of the market and how the solution will create economic value to drive industry adoption.
1-10	Replicability and scalability: team’s description on how they will produce the product cost-effectively and scale the idea beyond original prototypes.
1-10	Novelty: the originality and creativity of the solution and how significant the contribution will be to the building industry.
<b>Diversity and Applicability (30% of score)</b>	
1-10	Diversity statement: how well the team addresses the diversity gap in the building science industry in the 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—diversity of thought.
1-10	Stakeholder engagement: how well the team understands their stakeholder community and creates a problem statement around this community’s challenges.
1-10	Applicability to stakeholders: how well the solution addresses the problem statement and associated stakeholder community.

## Final Event Presentation Instructions

Judges will review team submissions and select finalists, who will be notified of their advancement in the competition by December 7, 2020. Finalist teams will then have until December 14, 2020, to notify JUMP into STEM organizers whether they will be attending the last stage of the competition on January 28–29, 2021. The virtual final event will include a round of presentations from each finalist team to a panel of three judges. At the conclusion of the event, winners of the 2021 summer 10-week paid internships at ORNL or NREL will be announced. (Internships subject to site access requirements and availability of funding. See the specific [Building Technologies Internship Program \(BTIP\)](#) eligibility requirements and procedures.)

**Each team will have 10 minutes for their team presentation.** After team presentations, there will be a 5-minute Q&A session with the panel of judges. Team concepts and presentations will be evaluated slightly different criteria than the Challenge evaluation criteria. The criteria for the Final Event can be found on page 7 of this document.

**Finalists must send their final event presentations to organizers at [jump@ornl.gov](mailto:jump@ornl.gov) by Wednesday, January 20, 2021 5 p.m. ET** so they can be formatted for the virtual conferencing platform. JUMP into STEM organizers will confirm receipt of presentations.

### *Final Event Presentation Requirements*

<input type="checkbox"/> File type: 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]. (i.e., JUMP_School Name_Final_2021-01-20.ppt or pdf)
<input type="checkbox"/> Maximum presentation length: 10 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"/> Must dress professionally appear on video
<input type="checkbox"/> Submit presentation file to organizers no later than 5 p.m. ET on January 20, 2021

## Final Event Evaluation Criteria

The Final Event evaluation criteria is slightly different than the Challenge evaluation criteria, please review the criteria detailed below.

**Table 4. Final Event Evaluation Criteria**

<b>Technical (30% of score)</b>	
1-10	Technical solution or process: how well the proposed technology addresses the problem.
1-10	Technical feasibility: the solution's technical feasibility/potential, including the viability of the proposed technology. For example, solutions that are not technically possible or that lack a technical feasibility discussion will receive lower scores.
1-10	Technology-to-market plan: the proposed technology-to-market plan, including the team's cost/benefit analysis of the solution. How technically feasible is the proposed plan to bring the solution from a paper concept to installation or integration with real buildings or building designs? Costs and benefits can include both monetary and non-monetary evaluations.
1-10	Technical response: how well the team's written submission responds to the technical requests of the challenge.
<b>Innovation (20% of score)</b>	
1-10	Market characterization and readiness for proposed idea: team's description and understanding of the market and how the solution will create economic value to drive industry adoption.
1-10	Replicability and scalability: team's description on how they will produce the product cost-effectively and scale the idea beyond original prototypes.
1-10	Novelty: the originality and creativity of the solution and how significant the contribution will be to the building industry.
<b>Diversity and Applicability (20% of score)</b>	
1-10	Multidisciplinary team approach: how the team utilizes information from different disciplines to come up with a viable solution, which includes diversity of thought.
1-10	Stakeholder engagement: how well the team understands their stakeholder community and creates a problem statement around this community's challenges.
1-10	Applicability to stakeholders: how well the solution addresses the problem statement and associated stakeholder community.
<b>Presentation (30% of score)</b>	
1-10	Effective delivery of ideas: how well the team conveys their ideas during their presentation, including how well the team engages with and persuades the audience.
1-10	Presentation preparation: how prepared the team is for their presentation, including evaluation of their presentation materials and their professionalism.
1-10	Questions and answers: how well the team responds to questions from the judges.

## Internship Application Instructions for Finalists

Selected finalists will give presentations at the JUMP into STEM virtual final event. A panel of judges at the event will select winners who will be awarded with 2021 summer internships at either ORNL or NREL. Prior to this weekend, all participating teams must submit an intern application at the same time as their paper submission in order to be considered.

### *Internship Application Requirements*

<input type="checkbox"/> Create a profile on <a href="https://Zintellect.com">Zintellect.com</a> . Use an email that you will check often.
<input type="checkbox"/> Eligible applicants must have a cumulative minimum grade point average of 3.0 on a 4.0 scale, as of November 13, 2020.
<input type="checkbox"/> Must be enrolled as an undergraduate or graduate student at a U.S. accredited institution at time of application. Students graduating in Fall 2020, Spring 2021, or later are eligible for the internship. Verification required upon acceptance into the program.
<input type="checkbox"/> Have medical insurance during appointment. Verification required upon acceptance into the program.
<input type="checkbox"/> Must be at least 18 years of age.
<input type="checkbox"/> Submit all required application essays and answer all required questions.
<input type="checkbox"/> Submit academic transcripts.
<input type="checkbox"/> Submit resume.
<input type="checkbox"/> Submit the name and contact information of one reference—academic or professional—into the <a href="https://Zintellect.com">Zintellect</a> system. The letters of recommendation are due at the time of submission.
<input type="checkbox"/> Reference must submit their evaluation and/or letter through <a href="https://Zintellect.com">Zintellect</a> .
<input type="checkbox"/> All documents must be submitted via <a href="https://Zintellect.com">Zintellect</a> by November 20, 2020.