UNIVERSITY OF GEORGIA
Center for Continuing Education & Hotel

GEORGIA JUNIOR STEM SYMPOSIUM

Georgia Junior STEM Symposium

2025-2026 RULES & GUIDELINES

The Georgia Junior STEM Symposium is administered and sponsored by the Office of Academic Special Programs at the University of Georgia Center for Continuing Education & Hotel.

www.georgiacenter.uga.edu/youth-programs/pre-collegiate-competitions/stem-symposium

About the Symposium

Administered by the Office of Academic Special Programs at the University of Georgia Center for Continuing Education & Hotel, the **Georgia Junior STEM Symposium** is a statewide research paper and virtual presentation competition for Georgia students enrolled in grades 9-12 who engage in research investigations in the sciences, technology, engineering, or mathematics (STEM).

Participation in the Symposium is by invitation only. To be selected, students submit a research paper, abstract, and *Outside Assistance Disclosure Form* (see page 6 for details). Applications are reviewed by a team of STEM researchers and industry professionals. Based on this review, 35-50 students are invited to attend and present their work at the virtual Symposium on February 26. These presentations will represent the finest efforts of high school students in the state toward either original laboratory research, field research, or applied research.

A panel of judges will interview each presenter about their paper, research process, or presentation. These questions are intended to clarify the presenter's depth of understanding, level of work and effort, and individual contributions to the project. Judges will deliberate to identify top presentations meriting awards.

All presenters will receive a certificate honoring their achievement. Top presenters will receive cash awards and acknowledgement in press releases and may qualify for other honors.

2026 Dates & Deadlines

January 7
Intent to Participate Deadline

Students who intend to apply must submit the brief ***Intent to Participate*** form by this date. No other materials are due at this time.

January 13 at 5:00 p.m.
Application Deadline

The **Research Paper, Abstract,** and **Outside Assistance Disclosure Form** must be submitted with the online application.

February 13
Selections Announcement

All applicants will receive an email notification.

February 26
Georgia Junior STEM Symposium

Each presenter is assigned a presentation time between 9:00 a.m. and 3:00 p.m. Presentation times cannot be changed.

Guest speakers, panels, and other virtual activities may be offered throughout the day (tentative).

The Symposium will conclude with an announcement of award winners.

Administration & Sponsorship

The Symposium is sponsored by the University of Georgia Center for Continuing Education & Hotel ("Georgia Center"), a unit of Public Service & Outreach. The Georgia Center creates an environment that fosters curiosity and growth through authentic learning experiences. As a prominent gateway to the University, the Georgia Center serves to foster professional and personal growth through educational programs and partnerships and to create an engaging and inclusive environment that supports intellectual exchange.

The Symposium is administered by the Georgia Center's Office of Academic Special Programs (OASP). OASP seeks to equip Georgia's pre-college students to succeed and flourish in an increasingly complex and highly technical world by becoming problem solvers, critical thinkers, inquirers, reflective learners, and productive and influential members of their communities.

Mission

The Symposium aims to promote original research and experimentation in STEM among high school students and to celebrate outstanding achievement. By honoring students' research through awards and recognition, the Symposium seeks to inspire continued engagement in STEM and expand the pipeline of skilled talent capable of conducting research and development vital for human advancement.

Eligibility

The Georgia Junior STEM Symposium is open to high school students who have completed an original research investigation in the sciences, technology, engineering, or mathematics and who meet the requirements below.

- **GRADE LEVEL / SCHOOL TYPE:** Applicants must be in grades 9-12 and enrolled in a public, private, or home school located in the state of Georgia. Cyber school students who reside in Georgia are also eligible.
- **CONTINUATION PROJECTS:** The research paper and presentation must focus on research conducted no earlier than January 2025. Projects may continue a research investigation; however, a study which merely adds data from a previous year's project is not considered a strong continuation project. If a continuation project is submitted, the student must discuss how the project was expanded (e.g., methodology, new variables), discuss any revisions in experimentation, and present new data.
- **TEAM PROJECTS:** If a student is part of a larger group, a team leader should be selected to submit the application. All team members must meet the eligibility requirements and be disclosed in the application. **Only submit ONE application per team.** The judging criteria used to judge all papers and presentations remains the same. The presentation should focus on the coordinated efforts of all team members and properly acknowledge the contributions of the team. **If the project is selected for the Symposium, only the team leader will be invited to present the project.** Cash awards are awarded only to the Team Leader.
- **APPROPRIATENESS:** While valuable endeavors, projects that are demonstrations, 'library' research, or informational projects are not appropriate for the Symposium.
- **TEACHER SPONSOR:** Each student must identify a grade 9-12 teacher sponsor who will help monitor deadlines and provide guidance throughout the application process.
- **ATTENDANCE / PARTICIPATION:** Presentation times are determined by Symposium leadership. The presenter must be present for the assigned time or risk disqualification. **Students are asked to fully participate in all Symposium activities.** The Symposium is made possible by many industry professionals, researchers, and graduate students who generously volunteer their time and expertise to serve as judges and guest speakers. Full attendance and engagement in Symposium activities honors this support.

Plagiarism, AI, and Outside Assistance

All abstracts and research papers must be the original work of the student. Papers may include supporting materials created by another person if an accurate citation of the material is included. Quotations from newspapers, books, or other media are permissible if an accurate citation is included. Missing citations are a form of plagiarism.

No submission may include any trademarked material(s) without the written permission from the owner(s) of the trademarked material(s). In addition, no research paper may include material that was created by another person without permission to quote such materials by the creator or owner of such intellectual property, such as unpublished documents or documents that explicitly say to obtain permission to use, and a copy of such permission must be made available.

The Symposium expects that all work students submit will be their own. In instances of collaboration during the research process, the ***Outside Assistance Disclosure Form*** must list all contributors.

The Symposium prohibits the use of ChatGPT or other generative AI tools to write any part of the abstract or paper. Any other use of AI tools must be clearly described in the ***Outside Assistance Disclosure Form***.

Plagiarism will result in disqualification and revocation of awards and honors.

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Project Categories

Projects submitted to the Georgia Junior STEM Symposium must be entered in ONE of the eight categories below. Some projects may fit in multiple categories (especially those in areas related to biomedical science / medicine and health), but only one category should be selected. **Related categories may be combined for the presentation competition.**

When selecting a category, consider what type of professionals would be most qualified to evaluate your project, and what areas of expertise are most important for a judge to have.

The category selected by student in the Symposium application is not guaranteed and may be changed after review of Abstract and Research Paper.

BIOMEDICAL SCIENCE

includes Biomedical Medicine, Microbiology, Cellular and Molecular Biology, Genetics, Immunology, Pharmacology, Virology

CHEMISTRY & MATERIALS SCIENCE

includes Physical Chemistry, Materials, Alternative Fuels, Organic Chemistry (possibly in Life Sciences), Chemical Engineering, Earth Science, Geochemistry, Materials Science

ENGINEERING & TECHNOLOGY

includes Aerospace, Aerodynamics, Electrical Engineering, Solar Energy, Vehicle Development, Devices, Mechanical Engineering, Robotics

ENVIRONMENTAL SCIENCE

includes Environmental Engineering, Bioremediation, Ecosystems Management, Land Resource Management, Pollution, Toxicity in Ecosystems

LIFE & BEHAVIORAL SCIENCES

includes Developmental Biology, Plant Physiology, Population Genetics, General Biochemistry, Microbiology, Behavioral Science

MATHEMATICS & COMPUTER SCIENCE

includes Probability and Statistics, Mathematics, Computer Science, Algorithms, Databases, Networking, Computer Engineering

MEDICINE & HEALTH

includes Biochemistry, Bioengineering, Disease Diagnosis and Treatment, Epidemiology, Immunology, Neuroscience, Physiology, Pathology

PHYSICAL SCIENCES

includes Astronomy, Theoretical Physics, Solid State Physics, Acoustics, Optics, Thermodynamics, Particle Physics, Quantum Physics, Nuclear Physics, Internet of Things (Network of physical objects embedded with electronics, software, sensors, and network connectivity)

The Symposium judging team includes individuals with significant graduate-level education and experience in the general fields of research represented by the Project Categories above. Expertise in each student's topic area is typically represented among the judges but is not guaranteed and may not be highly specialized. Presenters have a responsibility to communicate their results so they may be understood by both a non-specialized audience and expert judges alike.

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Judging Criteria

The following criteria are used by the judging team to guide discussions and evaluations of research papers and presentations. **All papers and presentations must also follow the Rules & Guidelines on pages 6-10.**

1. Research Problem

- Clearly demonstrates thorough understanding of existing knowledge about the research problem.
- Research problem is clearly stated and explained in detail.

2. Scientific Thought, Creativity/Originality

- Balanced presentation of relevant, legitimate information and data to support the research problem.
- Shows thoughtful, in-depth analysis of the topic.
- Fully demonstrates researcher's individual contributions to the project.

3. Research Design*

- Description of research design and procedures is detailed and shows reproducibility.
- Procedures are appropriate for the problem.
- Control and variables are clearly identified and explained.

***for Engineering, Technology, & Computer Science projects:**

- Clear, detailed description and recognition of relationship between design and end product.
- Addresses economic feasibility of solution.
- Solution is tested for performance under conditions of use.

4. Methods

- Encompasses all materials required.
- Clearly states the hypothesis/research questions and explains the study design.
- If used, statistical procedures are included.
- A detailed narration of the steps taken to complete the experiment is included.

5. Results

- Results of the research are summarized.
- Data trends are clearly addressed and analyzed.
- Data that can stand alone in tables/figures are included in the paper or appendix.

6. Discussion/Conclusions

- Conclusion is logical and relevant to the research problem and results of experimentation or testing.
- Discussion addresses the significance of the results in detail and recognizes the limits of the research.
- Practical and/or theoretical implications of the research are recognized.

7. Communication

- Clearly communicates research results to non-specialized audience and judges.
- Terms are defined as needed. Avoids overuse of technical jargon.
- (Presentation): Responses to questions from judges and audience are thoughtful and appropriate.
- (Presentation): Presentation delivery is natural; presenter does not appear overly reliant on notes or to be reading from a script.

8. Sources/Acknowledgements

- Acknowledges major assistance received and credits anyone who helped with project and describes their help in detail. Note: Completion of the *Outside Assistance Disclosure Form* may not be sufficient. Sources of major assistance should be acknowledged in the research paper and presentation.
- References listed in the bibliography are significant, published, and relevant sources.

The Symposium office, University of Georgia, and judging team recognize the significant effort students undertake in conducting research. We aim to ensure an equitable competition by selecting qualified judges and communicating the rules of competition. In any competition of this nature, differences of opinion about the judges' interpretations may occur. **It is the policy of the Symposium to support the interpretations and decisions of the judging team.**

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APPLICATION REQUIREMENTS

- ✓ Submit the Intent to Participate form by January 7.
- ✓ Submit the full application by 5:00 p.m. January 13, including:
  1. **Outside Assistance Disclosure Form**
  2. **Abstract**
  3. **Research Paper**

1. OUTSIDE ASSISTANCE DISCLOSURE FORM

All applicants must prepare and submit the *Outside Assistance Disclosure Form* as part of their application. Students may only use the provided form dated 2025-2026 (available on the Symposium website).

Please ensure the form is *complete*, contains *all required signatures,* and is *uploaded correctly* before submitting the application. Applications containing blank or incomplete forms may be disqualified.

This form requires students to report on their contributions to the research investigation. The form also requires comments by the supervising teacher or mentor addressing the student's individual contributions to the research investigation or project and acknowledgment that the student conducted the research in accordance with proper procedures and protocols for the conduct of animal research or human research.

2. ABSTRACT

All applicants must submit a **maximum 250-word** Abstract with their application. The Abstract should convey the essential nature of the research conducted and the most significant conclusions reached. Abstracts also serve to attract the interest and curiosity of the non-specialist reader and encourage discussion.

The Abstract must be entered as plain text (i.e., free-typed or copied-pasted from a document) into the online application. If copying-pasting, check formatting (e.g., line breaks) before submission.

It is recommended that the Abstract includes the following elements in ***narrative form*** (without subtitles):

1. The **statement of the problem** tells the reader what specific questions are addressed in the study, identifies variables and limitations, and clarifies intent and objectives of the research effort.
2. The **purpose** states the usefulness of the study and describes why the project was undertaken.
3. The **hypothesis** is an educated guess that shows the relationship between a set of observed facts and a theory. The hypothesis limits the scope of the investigation and unifies the research design. Engineering, math, computer science, and sometimes physics projects may not have a hypothesis.
4. The **procedure** provides a brief summary of what was done.
5. The **conclusions** provide a concise statement of the outcomes of the investigation. They should be written in non-technical language and be related directly to the hypothesis. The conclusions should identify unsolved aspects of the original problem or any new problems identified.

3. RESEARCH PAPER

The Research Paper details the original scientific research and should generally follow "best practices" in the field of study. Work must be that of the student, not the mentor. See also the *Plagiarism, AI, & Outside Assistance* section on page 3.

Research Paper Requirements

Please read carefully before preparing research paper. **Papers that do not follow these requirements may be disqualified.** Disqualified papers will not be sent to the judging panel for review.

1. The paper must begin with a **title page** containing ONLY the following items: **project title, student name, school,** and **date**. The title page is included in the total page count.
2. The student's name should NOT be anywhere in the paper except for the title page.
3. The paper must be **minimum of 8 pages** and **maximum of 20 pages** (includes ALL paper components, i.e., title page, table of contents, works cited, appendices, etc.).

RESEARCH PAPERS EXCEEDING 20 PAGES WILL BE DISQUALIFIED.

Double-check your PDF before submission to ensure formatting has not pushed it beyond 20 pages.

4. The paper must be typed in a standard 12-point font, such as **Times New Roman** or **Calibri**, be **double-spaced**, and use **1-inch margins**.
5. The paper must be submitted as a **PDF (.pdf)** document. Double-check formatting of images, tables, page numbering, etc. before submission to ensure distortion did not occur during PDF conversion.

   If there is reasonable doubt about whether a paper violates formatting requirements (margins, spacing, font size, etc.), the paper may be required to be resubmitted as a Word (.docx) file for verification.
6. The paper must not include hyperlinks or URLs (other than those used solely to cite references).
7. The paper must use APA style formatting. For help with APA, see the APA Guide and Purdue OWL.
8. Photography, graphs, tables, diagrams, charts, or other graphic representation in the paper must be simply presented.
9. The following elements and format are recommended:
   a. TITLE PAGE - Include the project title, student's name, school, and date.
   b. ACKNOWLEDGMENT OF MAJOR ASSISTANCE - Include a statement on where and when the research was done and acknowledge those who assisted you with the study.
   c. As applicable, statement that research involving non-human vertebrates or human subjects was conducted under the supervision of an experienced teacher or researcher and followed state and federal regulatory guidance applicable to the humane and ethical conduct of such research.

Continued on following page →

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d. TABLE OF CONTENTS - List topics and sub-topics in order and the page numbers they start on.

e. INTRODUCTION - Provide background details or the setting of your specific research problem. Assume that the reader will be scientifically literate but may not be familiar with the details. State the purpose of the study early, and then state the hypotheses that you are testing. Describe what is already known about the research.

f. MATERIALS AND METHODS - Describe the materials, methods, or procedures used to conduct the research. This section should be specific enough that the research could be replicated.

g. RESULTS (DATA OR FINDINGS) - Present the results of your research findings in logical order. Use graphs, tables, and/or other representations. Tables and graphs should be numbered separately and should include captions. Explain the important features of each table, graph, etc. Report the results of statistical analyses of your data and the type of statistical tests used.

h. DISCUSSION AND CONCLUSIONS - Interpret your results. Restate the hypotheses and explain how the data supported or rejected the hypotheses. Discuss your research findings in relationship to what is already known about the research problem (reported in the introduction). Draw conclusions based on your findings. The conclusions can include relevant, subjective observations or comments, but state that these are speculation. Acknowledge any limitations that affect the research results. For example, what further experiments need to be performed? Statistical techniques used to manipulate the data may have limitations. Some of the treatment effect might have been caused by a random, uncontrolled, intervening variable. Again, acknowledge these limitations and other factors over which the researcher had no control, and state how these might have influenced the study outcomes.

i. REFERENCES OR LITERATURE CITED - List citations for every article cited in your text. Endnotes are needed for all direct quotations and for all important statements of fact or opinion that are taken from written sources. Figures, dates, descriptions of situations, scientific data, opinion, representations and the like which are presented to advance the subject of the paper must have a stated source. Check with your teacher or other advisors if you need further assistance in the format for endnotes. **The references/citations section may be single-spaced.**

j. APPENDICES - If necessary, you may include large tables of raw data in your report. Keep in mind that the introduction is far more valuable in the judging process than appendices of raw data. Label and paginate appendices. **Appendices are included in total page count and may be single-spaced. Total page count may not exceed 20 pages.**

Additional Tips for Abstracts and Research Papers

1. Use past tense and third person in describing completed research and present tense when stating existing facts and what is in the paper.
2. Incorrect spelling and sentence structure will discourage interest in your project.
3. Assume the reader knows general technical vocabulary, but avoid highly-specialized terms or abbreviations.
4. In the Abstract, if reference to procedure is essential, restrict it to identification of method or type of process employed. In the Research Paper, discuss the details of procedures and equipment.
5. State results, conclusions, or findings in a clear, concise fashion.
6. Have teachers and peers read your abstract and paper to make sure they communicate clearly.
7. Helpful references:
    a. Kathryn, Geese & Rezba, Students and Research (ISBN 0-8403-7766-5)
    b. Matthews, Bowen & Matthews, Successful Scientific Writing (ISBN 0-521-55948-0)
    c. Rezba, Sprague, Fiel, Funk, Learning and Assessing Science Process Skills (ISBN 0-8403-8430-0)

Research Involving Vertebrate Animals or Human Subjects

Research involving vertebrate animals or human subjects must be conducted under the direct supervision of a qualified teacher or mentor with an approved active protocol which complies with local, state, or federal regulations for such research. The Georgia Junior STEM Symposium requires students and supporting adults to acknowledge in the *Outside Assistance Disclosure Form* that proper procedures and protocols were followed. Projects that were conducted without proper supervision will be disqualified.

The following are guidelines for research involving vertebrate animals and human subjects. All research involving vertebrate animals and human subjects must be conducted safely and ethically under the approval and direct supervision of qualified professionals, such as researchers at regulated research institutions.

General guidelines for experimentation involving vertebrate animals:

- Only animals that are lawfully acquired shall be used in experimentation and their retention and use shall be in every case in strict compliance with state and local laws and regulations.
- Animals used in experimentation must receive every consideration for their bodily comfort; they must be kindly treated, properly fed, and their surroundings kept in a sanitary condition.
- No intrusive techniques may be used, including surgery, injections, or taking of blood.
- When animals are used by students for their education or the advancement of science, such work shall be under the direct supervision of a committee of individuals knowledgeable of applicable regulations governing the care and animal of animals in the conduct of the project.
- At no time should a student do harm to a vertebrate animal in the conduct of the research.

General guidelines for research involving human subjects:

- No project may use drugs, food, or beverages in order to measure their effect on a person.
- Projects that involve exercise and its effect on pulse, respiration rate, blood pressure, and so on are approved if a valid normal physical examination is on file and provided the exercise is not carried to the extreme.
- If your research involves administration of questionnaires or surveys, a proper consent from subjects must be obtained.
- No human cultures of any type – mouth, throat, skin, or otherwise – will be allowed [unless conducted at a regulated research institution with all proper approvals]. Tissue cultures purchased from reputable biological supply houses or research facilities are suitable.
- The only human blood that may be used is that which is either purchased or obtained from a blood bank, hospital, or laboratory. No blood may be drawn by any person or from any person specifically for a Symposium project. This rule does not preclude a student making use of data collected from blood tests not made exclusively for a Symposium project.
- Experimentation involving human subjects requires direct supervision of a committee of individuals knowledgeable of applicable regulations governing the conduct of such research. Non-regulated research institutions (i.e., high schools) should establish a committee of knowledgeable teachers and other mentors to view the research plan prior to the conduct of the research.

Information adapted from:
Bonkalski, J., K. Keehn, J. Petric, and P. Wheeler. 1994. Guide book and policy manual for the Illinois Junior Academy of Science. Homewood, IL: IJAS

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Presentation Rules & Guidelines

At the virtual Georgia Junior STEM Symposium on February 26, presenters will deliver a maximum 12 minute oral presentation of their scientific research. For this presentation, students may use a computer-projected presentation developed with *PowerPoint* or other slide presentation software. The presentation should be prepared as a single file with all illustrations and other graphical representations incorporated therein.

See page 5 for judging criteria.

SESSION TIMING

The presentation may not exceed 12 minutes, followed by a 6-minute question period. The presenter will receive a 2-minute warning at the 10-minute point. At the 12-minute point, the presenter must stop the presentation, even if they have not finished. Following the presentation, the session moderator will ask for questions from the judging panel. If the speaker runs out of time and does not show all of their presentation slides, they cannot reference unseen slides during the question-and-answer period.

EQUIPMENT

Presentations will be conducted via web conferencing software (e.g., Zoom). Presenters will use a "screen share" feature to display and operate their presentation. Students will have the opportunity to test the software and learn its basic features prior to the presentation. Students should be prepared to re-show slides during the questioning period.

AUDIO AND VIDEO USAGE

Use of audio or video must comply with the following:

1. Audio/video may be used only for aspects of the presentation that cannot adequately be presented on a static slide.
2. Audio/video should not make up more than one (1) minute of the presentation.
3. Audio/video material must be integral to the research and should not be a substitute for presentation of data.
4. Video must not be used to show common procedures, equipment, or laboratory facilities.
5. Audio/video should not be used for aesthetic or entertainment purposes.
6. Audio/video must be embedded in the presentation.
7. Recorded or artificially produced narration is not permitted.

QR codes or hyperlinks may not be included or distributed in any part of the presentation.

Presentation Tips & Suggestions

Remember, you are the expert. No one in the audience knows as much about your research investigation as you. Explain your research in enough detail so the audience will understand what you did, how you did it, and what you learned. Whenever possible, avoid jargon or unnecessary terminology. If it is essential to use specialized terms, remember to explain the specialized term briefly. Give your audience enough time to understand what you are trying to convey.

Graphs, tables and other representation help explain your results. Keep them simple and uncluttered. Focus on important information; e.g., name the variables on both axes of a graph, and state the significance of the position and shape of the graph line.

Practice will help perfect the presentation and the timing. Deliver your presentation at a comfortable pace. It helps to practice before a non-specialized audience. Do listen to the advice of your non-specialized audience but also get help from a teacher or other advisors as needed.