

International Astronomy and Astrophysics Competition

Information Flyer

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1. What is IAAC?

1.1 Vision, Mission, and Values

Astronomy is an outstanding scientific subject that has inspired us, humans, for thousands of years: By looking into the sky and imagining the earth as a tiny boat in the depths of space, we feel connected and curious about all the planets, stars, and galaxies out there.

The International Astronomy and Astrophysics Competition takes this fascination-sparking subject and gives students the opportunity to challenge their astronomy and astrophysics knowledge and to learn more about this exciting subject beyond what the typical school curriculum has to offer.

The International Astronomy and Astrophysics Competition aims to be accessible to all students from all countries regardless of their background, school, or institution. For that, the International Astronomy and Astrophysics Competition uses today's technologies and the global connection through the internet to make this competition possible: All you need is a pen, paper, and an internet connection to participate!

In general, astronomy is an excellent motivation for students to get in touch with science. Our society is in need of capable scientists and engineers that develop, shape and maintain the innovations of the future. The initial motivation through scientific events and competitions can encourage students to a professional career as a researcher or engineer. We have the aim to provide a sophisticated educational program and to enable students, parents, and teachers to get involved in the process of shaping our future.

1.2 What makes IAAC unique?

Although the competition format is integral to the IAAC, its primary goal is to encourage students to engage with astronomy and spark further interest in this and related scientific fields. As a result, IAAC serves as a learning experience, motivating students and allowing them to learn through experimental problem-solving formats. Noteworthy aspects of the IAAC program include the following:

Internationality:

The International Astronomy and Astrophysics Competition is a global competition from the first round onward. All participants solve the same problems in every round: This enables a fair evaluation and allows for international exchange among participants, which is usually only available to a few national representatives participating in international rounds.

Digital Accessibility:

The competition uses the possibilities of the modern internet to give all students the opportunity to participate regardless of nation, region or school affiliation. Although having a teacher's support is beneficial, participating as an individual is always possible from anywhere around the world.

Experimental Formats:

Part of the IAAC experience are problem formats, which are uncommon for traditional competitions and aim for a distinctive learning experience. This includes problems that focus on the extension of school-typical formats through thought-provoking modifications or types of problems, which require a deeper dive into the research surrounding a topic.

Real-World Research:

Getting students in touch with real-world examples of scientific research is an essential feature. The Pre-Final Round usually includes recently published research articles as part of the problem format, which is unique to IAAC: For many participants, this is the first time

learning about actual research, and we offer additional support to expand this learning experience.

Adjusted Difficulty:

The problems are designed to appeal to both science enthusiasts as well as students who are just starting to find interest in science beyond the school curriculum. To ensure that everyone has a positive experience, the level of difficulty is adjusted to include more approachable problems similar to those typically seen in school, as well as more challenging problems that incorporate unusual formats.

Online Tools for Teachers:

We provide teachers and schools with supplementary resources and support them throughout each edition. Teachers have access to a dedicated interface for managing the submissions of their students, tracking their results & certificates and supervising the Final Round exam.

Local Groups & Ambassadors:

As IAAC goes far beyond the annual competition, we strongly encourage and support the formation of local student groups related to astronomy & IAAC around the world, including meetups and other events. The IAAC Ambassador Program allows motivated students and mentors to encourage other youths to engage with astronomy and to establish a local community that brings together students over science.

Supportive Alumni Network:

Since its first edition in 2019, thousands of students have participated in IAAC, creating a vast alumni network. This network encourages international exchange, including the distribution of various relevant opportunities like scholarships or sponsored events, to support each participant's academic career.

2. Who can participate?

Current high school and university students from all grades and countries are eligible. There are three age groups:

■ Junior: 10th Grade and below (and < 16 years of age)

■ Youth: 11th to 13th Grade (and < 19 years of age)

■ Senior: 1st Year College/University and higher (or ≥ 19 years of age)

Depending on your age group, you will have to solve more problems to qualify for the next round. To solve the problems, you should be open-minded and creative. As some problems may require you to read real-world research material, fluency in English is beneficial. You should have a working internet connection to submit your solution online.

FAQ: My age or grade changes after the submission deadline. To which group do I belong?

Your grade/age on the day of the submission deadline of the Qualification Round determines your age group, and it will not change throughout the competition

FAQ: Do I have to be a student to participate?

Yes, you have to be a student in a high school, college, or a university to participate. If you are currently between high school and university (e.g., gap year) and plan to start university any time soon, you are also eligible to participate.

3. Why participate?

The International Astronomy and Astrophysics Competition gives you the unique opportunity to unleash your science skills and to apply them to challenging problems. Participants receive certificates, awards, cash prizes, global recognition, and more.

3.1 Prizes and Awards

All participants receive participation certificates to certify their efforts. In the Final Round, participants can receive a Bronze, Silver or Gold Honour, depending on their performance. The best students are awarded the 1st, 2nd and 3rd Prize as well as national awards for the best participants from each country:

1. Prize, Senior	175 USD Cash Prize, Special 1. Prize Certificate
2. Prize, Senior	125 USD Cash Prize, Special 2. Prize Certificate
3. Prize, Senior	75 USD Cash Prize, Special 3. Prize Certificate
1. Prize, Youth	150 USD Cash Prize, Special 1. Prize Certificate
2. Prize, Youth	100 USD Cash Prize, Special 2. Prize Certificate
3. Prize, Youth	50 USD Cash Prize, Special 3. Prize Certificate
1. Prize, Junior	125 USD Cash Prize, Special 1. Prize Certificate
2. Prize, Junior	75 USD Cash Prize, Special 2. Prize Certificate
3. Prize, Junior	25 USD Cash Prize, Special 3. Prize Certificate

National Awards Special National Award Certificate

All Finalists Participation, Bronze Honour, Silver Honour or Gold Honour

All Participants Official Participation Certificate

+ Special Honour for digital Submissions

FAQ: What is the "Special Honour for digital Submission"?:

All participants who write their Qualification Round solutions using a professional computer program (e.g., TeX) receive a special honourary note on their certificates.

3.2 National Awards

Since the International Astronomy and Astrophysics Competition is a global competition with participants from various countries, we honour the top three participants from each nation with a special national award certificate who achieve at least 50% of all points in the Final Round. A list of the top national scorers will be published online on our website.

3.2 Awards for Ambassadors

Each year, special awards are given to the most active and responsible ambassadors to honour their excellent performance. The IAAC coordinators use the information about the number of participants that you encouraged, as well as your documented activities & pictures, to honour the following awards:

- 1x IAAC Ambassador Award for Most Overall Participants: The ambassador who has encouraged the most students to participate in IAAC will receive this award.
- 1x IAAC Ambassador Award for Most Finalists: The ambassador who was able to support most students in progressing into the final round will receive this award.
- IAAC Ambassador Award for Excellent Encouragement: Ambassadors who are extraordinarily active in their local community, have documented numerous activities to inspire students in astronomy, or have supported students to join IAAC.

3.3 Awards for Schools

We understand the crucial role of teachers and schools in scientific education. Because of that, we award three types of school awards to honour the efforts of the teachers and the school (the awards are not connected to cash prizes):

- 1x IAAC School Award for Most Participants: This award receives the school with the most overall participants in the Qualification Round.
- 1x IAAC School Award for Most Finalists: This award receives the school with the most overall participants in the Final Found.
- IAAC School Award for Excellence: Schools with many outstanding students who have achieved high results throughout the overall competition or have shown particular support for their students while participating receive this award.

FAQ: How do schools participate to win the awards?

Schools participate automatically if a student registers with the school name. Please make sure that all of your students write the school name correctly and in the same way. Also, we recommend that the school's teachers register at IAAC.

3.4 Further Achievements

Participating in international competitions contributes to your personal development and is an excellent achievement for your academic career. Participating in IAAC is a unique experience that will expand your knowledge, get you closer to real-world research and connect you with like-minded students.

Global Network

Winners and former participants of IAAC become part of the international IAAC network: This network consists of outstanding and talented students from all around the world! It enables you to get in touch with inspiring youths and to connect with students worldwide. If you have successfully participated, you will receive all information about our alumni network from us.

Opportunities (e.g., Scholarships)

Our team is working constantly to provide former participants with information about international and regional opportunities, including scholarships, sponsored events and other competitions. We will send the relevant information to qualified participants directly and publish them via the alumni platform.

Regional Meetups

The IAAC team and local ambassadors frequently organize meetups in several parts of the world. All participants are welcome to attend and get in touch with other space enthusiasts.

FAQ: Do I receive a hard copy of the certificate(s)?

We will send hard copies of the certificates to all 1st, 2nd and 3rd Prize winners. All other participants, including the finalists, will receive a soft copy version of the certificates, which also includes a permanent verification-IDs: https://iaac.space/verify

4. Process and Rounds

The International Astronomy and Astrophysics Competition consists of three rounds: the Qualification Round, Pre-Final Round, and Final Round. Each round has it's unique features to enable a challenging and interesting experience!

4.1 Qualification Round

The Qualification Round is the first stage and consists of five astronomy problems: A, B, C, D, and E. The problems encompass a wide range of topics, varying in difficulty and discipline. The problems range from knowledge in astronomy to astrophysical calculations to make sure that everyone finds interesting problems to work out!

Points and Submission

The problems will test your astronomy and astrophysics skills. All participants of the Qualification Round will receive participation certificates. Each problem gives 5 points, and you need to score at least 15/17/20 points (Junior/Youth/Senior) to qualify for the Pre-Final Round.

The submission deadline is Friday, 4 July 2025, 23:59 UTC+0.

In order to avoid connection issues, upload errors, and other problems, please submit your solution before the official submission deadline. The solution file may be typed digitally (recommended; e.g., TeX), or it may be a clear picture of your handwritten notes. If you have multiple pictures, you may use an online tool to combine the pictures into a single PDF file. Make sure that you write your name, school, city and date of birth correctly! The details will be used for all certificates. There are no fees or registration costs to participate in the Qualification Round.

Announcement of Results

The results of the Qualification Round will be announced on Monday, 21 July 2025. You will receive an email about the results; however, you can also check your participant account for your results, performance report, and certificates online. Please log into your participant account so as not to miss any critical information: www.iaac.space/login

4.2 Pre-Final Round

Participants who solved the Qualification Round successfully are qualified to participate in the Pre-Final Round. The problems will be more challenging but also more engaging!

Problems and Points

The Pre-Final Round consists of six problems that vary in difficulty, points, and subject. There are three types of problems that give you four, six, and eight points:

■ 2x Basic Problems:

The Pre-Final Round includes two basic problems (lower difficulty).

■ 2x Advanced Problems:

The Pre-Final round includes two advanced problems (higher difficulty).

■ 2x Research Problems:

The Pre-Final round includes two research problems: These problems require you to read two short scientific research papers and to learn about recent scientific results in order to solve the problems or questions. This will give you the chance to get in touch with scientific research while solving the problems.

It is possible to reach up to 36 points in total. Participants need to score at least 16/20/24 points (Junior/Youth/Senior) to qualify for the Final Round.

Process and Submission

All participants who are qualified and registered for the Pre-Final Round will receive the problems via email or via their participant account on <u>Thursday</u>, <u>14 August 2025</u>. From that day on, you have four days until <u>Sunday</u>, <u>17 August 2025</u>, to solve as many problems as possible. You can submit your solution online via a dedicated submission form. You can choose if you would like to submit the solution as a handwritten version or as a digitally typed document. We recommend writing the solution in the blank space on the problem sheets of the Pre-Final Round. Please highlight your final solutions.

Registration and Costs

If you succeed in the Qualification Round, you can choose to participate in the Pre-Final Round by registering from your participant account. This educational opportunity comes with diverse costs, including those for human resources, technical infrastructure, materials and more. While our sponsors cover some of these expenses, we need to ask participants to cover this year's Pre-Final Round <u>registration costs of 11 EUR</u> to make IAAC on an international level possible. Financial aid is available to assist social-economic disadvantaged participants.

The registration costs are necessary to provide the resources required to run a competition at this scale, including evaluation, in particular, for the comprehensive Pre-Final Round. There are no other costs involved. You can find detailed information about the registration costs here: Registration Costs Flyer

The registration deadline for the Pre-Final round is <u>Tuesday 28. May 2024</u>.

FAQ: Can I only participate in the Qualification Round and not in the Pre-Final Round?

Yes, you can participate in the Qualification Round and receive your participation certificate and not register for the Pre-Final Round. However, in this case, you miss the opportunity to participate in any further rounds.

The results of the Pre-Final Round will be announced on Monday, 25. June 2024.

4.3 Final Round

Participants who have solved the Pre-Final Round successfully are qualified to participate in the Final Round: a multiple-choice online exam with 20 questions.

Exam and Points

The Final Round consists of a single exam with 20 multiple-choice questions requiring knowledge about astronomy and astrophysics, in particular related to the Qualification and Pre-Final Round. Finalists have 60 seconds for each question. There are four possible answers to every question (only one is correct). A correct answer equals one point. There are no negative points for incorrect answers. The awards and prizes are given to the finalists with the most points in the Final Round. If multiple participants have the same score, the points from the Pre-Final Round (and Qualification Round) are used to determine the final winners.

All final exams take place on <u>Tuesday</u>, <u>9 September 2025</u>.

Teacher Registration / Self-Recording

Finalists take the exam via a dedicated online exam portal (iaac.space/exam). The online exam is conducted in the participant's school, where a teacher supervises each finalist. All finalists have to select a teacher who agrees to supervise the exam. We will send all required information to the selected teacher who has time to conduct the 20-minute exam.

The teacher has to make sure that the finalist does not cheat and does not open any other browser tabs, websites, programs, or computer windows during the exam. Participants can also record their exams with a video camera or smartphone and upload the video. In this case, no teacher is needed.

The results of the Final Round will be announced on Monday, 15 September 2025.

4.4 Timetable and Deadlines

Below is a table listing all relevant dates and deadlines. Please note that changes may occur in some cases. The time applicable to all dates in the timetable below is 23:59 UTC+0.

Qualification Round:

Friday 4 July 2025 Submission Deadline (Qualification Round)

Monday 21 July 2025 Announcement of Results (Qualification Round)

Pre-Final Round:

Tuesday 12 August 2025 Registration Deadline (Pre-Final Round)

Thursday 14 August 2025 Release of Problems (Pre-Final Round)

Sunday 17 August 2025 Submission Deadline (Pre-Final Round)

Monday 25 August 2025 Announcement of Results (Pre-Final Round)

Final Round:

Tuesday 9 September 2025 Day of the Final Round Exam (Final Round)

Monday 15 September 2025 Announcement of Results (Final Round)

5. Information for Teachers and Schools

Inspire and Challenge Students

The International Astronomy and Astrophysics Competition is a great way to sharpen the minds of your students by challenging them with creative astronomy and astrophysics problems and motivating them through friendly competition. The problems can be used as homework or project work as they feature diverse topics and difficulties. IAAC can inspire students to engage in science and provides an opportunity for talented students to expand their skills.

Special School Awards

Schools and teachers with numerous participants and an excellent performance throughout the competition receive special awards. The awards are not connected to a cash prize but are supposed to honour the efforts of the schools and the commitment of individual teachers. For more information, please see "Awards for Schools" on page 8.

Teacher Login and Registration

All teachers can register to access the special IAAC teacher page (Login). This tool enables you to: (i) view the student's results and documents; (ii) cover the Pre-Pinal registration costs for a group of students at once; and (iii) to supervise the Final Round exam. You can register as a teacher on this page: Registration

If you are interested in implementing an IAAC group in your school or using the IAAC problems for your curriculum or as project work, do not hesitate to get in touch. You can also find additional materials, flyers, and posters on our official website.

6. Ambassador Program

As IAAC is an international competition with participants from around the world, it is crucial to have official ambassadors in various schools, cities, and countries. Ambassadors represent IAAC, coordinate local student groups, organize activities and promote IAAC in their community. Being an IAAC ambassador is excellent for your CV, gives you the unique opportunity to prove your skills as a coordinator and allows you to encourage students to engage with astronomy.

Requirements

You have to be at least 14 years old, interested in science, and willing to spend time encouraging students to engage with astronomy and IAAC. Please note that a certificate will be issued to active ambassadors only (i.e., at least one Pre-Final Round participant is linked to an ambassador).

Responsibilities and Benefits

You have a variety of responsibilities such as to encourage students and youths to participate in IAAC and to inform schools, local institutes, etc. about IAAC. You also have the power to operate in the name of IAAC, to establish a strong and vital IAAC group in your region, and to inspire other youths for astronomy and science! All official IAAC ambassadors additionally receive a personal ambassador page to manage their activities and an official IAAC email address. Accepted IAAC ambassadors can login here: Ambassador Login

However, the unique opportunities are just a few of many reason to become official IAAC ambassador: There are more benefits such as high-class career experiences and the official IAAC ambassador certificate. Possible activities as IAAC ambassador include following:

- Using social media to spread information about the IAAC opportunity.
- Informing teachers and schools about the IAAC opportunity.

- Starting an after-school astronomy group or astronomy club.
- Hosting workshops or events related to astronomy and IAAC problems.
- Contacting and collaborating with local clubs, networks, and organizations.

You find a full list of ideas for ambassador activities here: Ambassador Activities

Special Awards for Ambassadors

Special awards are given each year to the most active ambassadors to honour their excellent and responsible performance. This includes awards for encouraging many participants as well as for coordinating many activities. However, your main purpose of becoming ambassador should always be to inspire youths! You find more information on page 8.

Application Process

In order to verify your eligibility as official IAAC ambassador, please fill out the ambassador application form: this includes your CV and a short motivation statement that explains your reasons and plans for becoming IAAC ambassador. After you applied, the Public Relations Coordinator and other IAAC coordinators will review your application and contact you: Ambassador Application Form

7. Further Information

7.1 Submission Status Page

We provide all participants with a participant account to check your submission, your results, your performance reports, and your certificates online. This online feature is available via this link: www.iaac.space/status

7.2 Further Materials and Documents

On our official website, you can find a list of materials with additional information that can be use to promote the International Astronomy and Astrophysics Competition. This includes:

- Information Flyers
- IAAC Posters (Color/BW)
- IAAC Paperhead
- Official Logos

7.3 Newsletter and Notifications

The IAAC notifications will inform you about upcoming challenges as well as general information and activities. You can subscribe to the notifications on our official website.

7.4 Social Media Page

In order to stay tuned and receive all recent posts and updates from IAAC, make sure to visit our Facebook and Instagram page. We encourage you to share our post on social media to inform everyone about this opportunity: www.facebook.com/iaac.space

7.5 Contact and Questions

If you have questions, comments, issues, or feedback regarding IAAC, feel free to contact your regional IAAC ambassador. You can find a list of all ambassadors online on our website. You can also contact our official e-mail and our team will get back to you: info@iaac.space

7.6 Organizers and Partners

The International Astronomy and Astrophysics Competition is an independent youth competition and not affiliated to any organization. You can view the full IAAC team online. The main coordinators of this year's IAAC competition are listed below:

Team Coordinator Fabian Schneider schneider@iaac.space Program Coordinator Rami Aly rami.aly@iaac.space Outreach Coordinator Victor Prado Both pradoboth@iaac.space

We thank all other involved people and coordinators that do their best to make this competition possible for students from all countries as well as our partners and sponsors:



International Youth Math Challenge www.iymc.info



CERN Beamline for Schools www.beamlineforschools.cern



Great Youth Opportunities Platform www.greatyop.com



You Can Lead BN Platform http://www.youcanleadbn.com



Al-Koon Education Page fb.com/Nahn.AlKoon

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All Partners and Sponsors of 2024: www.iaac.space/partners