

# SYLLABUS



INTERNATIONAL  
ECONOMICS OLYMPIAD

## **1. General**

**1.1.** National education systems and curricula vary in terms of structure and content, but the tasks of the IEO are composed in a way that facilitates equal competition. The tasks are not aimed primarily at testing the knowledge of theory. A significant share of the tasks is practical-oriented, test analytical skills and curiosity. The IEO tasks are created considering that its contestants are predominantly students of (senior) high school, or level 3 according to UNESCO International Standard Classification of Education (ISCED 2011). Yet, provided that the IEO is a worldwide selective competition for national teams, some tasks on the topics that are outside the scope of a traditional high school curriculum may appear.

**1.2.** Economics and Finance parts of the competition are individual. The competition in Business Case is a team competition.

**1.3.** The maximum individual final points for the parts of the competition (variable M) are the following: 100 for Economics part, 50 for Finance (Financial Literacy) part, 50 for Business Case part. The individual points for the Business Case part equal the team points for the part.

**1.4.** In every part of the competition, the result is first computed in raw points. Raw points are then normalized to get the final points according to the following procedure.

Let  $G_i$  be the raw score of the contestant (or team in the Business Case part)  $i$  in the part of the Olympiad,  $A$  — the average of all raw scores,  $\sigma$  — standard deviation of all raw scores. Then we define Z-score of the contestant  $i$  as:

$$Z_i = (G_i - A) / \sigma$$

The final result of the contestant  $i$  is then calculated as follows:

$$F_i = M/2 \times \{\min\{\max\{1 + z_i/2; 0\}; 2\}$$

Where M is the maximum possible result of this part (in final points) specified in this Syllabus.

If some scores change in the process of moderation, Z-scores and final scores are recalculated.

**1.5.** The total individual results are calculated as a sum of all three final scores. Ties are broken by taking the score from the Economics part. If still tied, the Finance (Financial Literacy) part results are taken.

**1.6.** The total team results are calculated as a sum of:

- The average final score of team members in the Economics part divided by 2;

- The average final score of team members in the Finance (Financial Literacy) part;
- The team score in the Business Case part.

Ties are broken by taking the average team score from the Economics part. If still tied, the Business Case part results are taken.

## **2. Economics**

**2.1.** The tasks in Economics (the first part of the competition) should test contestants' understanding of basic economic concepts and models, their curiosity about the field and analytical skills.

**2.2.** The topics discussed in the questions of the Economics part are the following:

- Economics principles and an economist's worldview
- Microeconomics:
  - Competitive markets (demand and supply, elasticities, equilibrium)
  - Consumer's choice
  - Firm's behavior
  - Non-competitive markets (monopoly, oligopoly, monopolistic competition)
  - Government interventions in competitive and non-competitive markets
  - Market failures (externalities, public goods, asymmetric information)
  - Labor market
  - Game theory: Nash Equilibrium, cooperation, and coordination
  - Innovations
- Macroeconomics:
  - Macroeconomic data: measuring income, inflation and unemployment
  - Technology and long-run growth
  - Labor market
  - AD-AS model
  - Money and the role of banks
  - Monetary and fiscal policy
  - Economic Fluctuations and crises
  - Institutions and Inequality
- International Economics:
  - Specialization and gains from trade
  - Protectionism: winners and losers

- Currencies, currency unions, exchange rates, and Interest rates parity
- Economics of the environment and sustainable development
- Relevant research in economics
  - Topics in economic science that attract the most popular attention; in particular, from fields for which Nobel Memorial Prizes in Economic Sciences have been awarded (understanding general concepts and how they relate to the topics listed above).

**2.3.** The main recommended textbook for the Economics part is *The Economy* by the *CORE Econ* project (latest version). The textbook is available at <https://www.core-econ.org> (free of charge).

Supplementary recommended textbook for preparation is *Principles of Economics* by N. Gregory Mankiw (the newest edition). Contestants can also use other A-level, International Baccalaureate, or principles level economics textbooks as supplementary sources.

For Nobel Memorial Prizes, see the website:

<https://www.nobelprize.org/prizes/lists/all-prizes-in-economic-sciences/>.

**2.4.** The Economics part of the IEO includes 20 multiple choice questions (MCQ) and 5 open questions (OQ). Multiple choice questions test the basic understanding of economic concepts (which may include simple calculations). Each of the 5 open questions will be stated either quantitatively (include calculations) or qualitatively (include detailed explanations) or both.

**2.5.** The overall time limit of the Economics part is 235 minutes. Upon the decision of the Steering Committee confirmed by the Problem Committee, the overall time can be divided in two segments: one for MCQ and one for OQ, with or without a break between those parts. If this happens, the decision on lengths of the break and segments is to be taken by the Problem Committee.

**2.6.** Answers to all 20 MCQs are graded. A correct answer adds 4 raw points, an incorrect answer subtracts 1 point, unanswered questions don't change the score.

The maximum grade for each open question is 30 raw points. Out of 5 open questions, only 4 are graded by the Jury. If a contestant provides non-empty solutions to all 5 questions, they must specify the question that shouldn't be graded. If in this case a contestant has failed to specify a solution not to be graded, the maximum grade of 5 OQ scores will be excluded.

**2.7.** Open questions are graded with full or partial credit depending on the contestant's progress. The following principles are used.

**2.7.1.** The Jury reviews papers according to grading schemes. In the case of a contestant's work containing a solution fragment that cannot be assessed based on the grading scheme, the Jury makes a decision based on its understanding of fair assessment, possibly consulting with the Problem Committee. The Jury assesses only what is written in the contestant's paper.

**2.7.2.** Fragments crossed out by the contestant in their paper are not reviewed by the Jury. If a contestant wants to undo the crossing out, they must explicitly write in the paper that they wish the crossed-out part to be evaluated. If it is impossible to determine conclusively whether the contestant wanted the solution fragment to be assessed, that fragment is not evaluated.

**2.7.3.** Contestants must present their solutions in clear English language. The Jury does not deduct points for language mistakes, corrections, spelling, punctuation, and stylistic errors or deficiencies in paper formatting, as long as the contestant's solution is understandable.

**2.7.4.** All statements in the contestant's solution must either be commonly known (standard) or logically follow from the question or the contestant's previous reasoning. A contestant does not need to prove commonly known statements. Generally, facts repeatedly used in previous International Economics Olympiads without proof in official solutions are considered commonly known, as well as standard high school curriculum material. All non-commonly known facts not trivially derived from the question must be proven. A solution explicitly or implicitly relying on unproven non-commonly known facts is rated with a partial score.

**2.7.5.** Contestants can solve questions using any correct method. The Jury does not increase scores for elegance or conciseness of the solution, nor does it decrease scores for using an unconventional method. A correct solution may deviate from the official one in its method. The length of the solution does not directly impact the evaluation; if a contestant writes a lengthy text without advancing the solution, it should be scored zero.

**2.7.6.** The contestant's work should leave no doubt about the method of solving the question. If a contestant presents multiple solutions to a question that are substantially different (potentially leading to different answers), and some of the solutions are incorrect, the Jury is not obligated to choose and evaluate the correct solution.

**2.7.7.** If the contestant's solution contains contradictory statements, they are generally not evaluated, even if one of them is correct. Violation of logical sequences (cause-and-effect relationships) typically results in a significant reduction in the score.

**2.7.8.** The contestant's work must include evidence of the completeness and correctness of their answer. The method of obtaining the answer, if not required for proving its completeness and correctness, is optional to present.

**2.7.9.** Penalties assigned by the Jury for computational errors depend on the severity of the consequences. Computational errors that did not significantly alter the subsequent solution of the question and made it substantially simpler are penalized with fewer points than errors that had a substantial impact regardless of the impact on the final conclusion. The grading key should specify the exact penalties for arithmetic mistakes whenever possible.

**2.7.10.** If a question has multiple parts, the contestant must clearly indicate where the solution to each part begins. If a contestant's solution to one part of the question includes a solution fragment that, according to the marking scheme, can earn points for another part of the question, the Jury may choose not to award those points if it is not evident that the contestant understands the applicability of the results to another point. When solving question parts, contestants can refer to their own solutions (answers) to other parts.

**2.7.11.** If an error occurs in the initial parts of a solution and it changes the contestant's answers in subsequent parts, the scores for subsequent parts are generally not reduced. They are evaluated as if the contestant's own results, used by the contestant, were correct. Exceptions occur when errors in the initial parts simplified or qualitatively distorted the logic of the subsequent solution — in these cases, scores for subsequent parts may be significantly reduced.

**2.7.12.** If additional assumptions are necessary for the contestant's solution, they must be formulated. These additional assumptions should not change the meaning of the question and significantly narrow the range of situations discussed in the solution compared to those specified in the condition.

### **3. Finance (Financial Literacy)**

**3.1.** The tasks in Finance (Financial Literacy) should test contestants' understanding of basic financial concepts and models, their ability to apply them and analytical skills.

**3.2.** The topics of the questions of the Finance (Financial Literacy) part are the following:

- **Financial Planning:** Income, expenses, and debt management, financial goals. Budgeting.

- **Banks and the Banking System:** Financial institutions facilitating savings, credit, and payments. Deposits, loans, interest rates, the role of the central bank.
- **Saving Money:** Setting aside money for future use, earning interest. Savings accounts, compound interest.
- **Borrowing Money, Credit:** Using borrowed funds with a promise to repay, often with interest. Credit cards, loans, credit score, interest rates.
- **Investment, Financial Instruments, and Risk Management:** Allocating money to generate returns while managing risks. Time value of money. Stocks, bonds, diversification, risk vs. return, derivatives.
- **Insurance Contracts and Insurance Market:** Risk management through financial protection against potential losses. Premiums, coverage, deductibles, liability.
- **Financial Fraud and Ponzi Schemes:** Deceptive practices to steal money or assets. Phishing, pyramid schemes, Ponzi schemes, regulatory measures.
- **Crowdfunding:** Raising funds from many contributors for projects or causes. Platforms, donation-based, equity-based.
- **Cryptocurrencies:** Digital currencies secured by cryptography and operating on blockchain. Cryptocurrencies, blockchain, volatility, decentralized finance.

**3.3.** The recommended resources for the Finance (Financial Literacy) part are:

- *The Economy 2.0: Microeconomics* (Unit 9 “Lenders and borrowers and differences in wealth”) (<https://core-econ.org/the-economy/>)
- Personal Finance course by GFLEC (<https://gflec.org/education/personal-finance-course/>)
- Money Smart for Young Adults curriculum (<https://www.fdic.gov/resources/consumers/money-smart/teach-money-smart/money-smart-for-young-adults.html>)
- Personal Finance Curriculum by PWC (High School Lessons) (<https://www.pwc.com/us/en/about-us/corporate-responsibility/access-your-potential/financial-literacy-curriculum.html>)
- Khan Academy courses on finance (<https://www.khanacademy.org/college-careers-more/personal-finance>, <https://www.khanacademy.org/economics-finance-domain/core-finance>)
- Other freely available sources on finance and financial literacy.

**3.4.** The Finance (Financial Literacy) part of the IEO includes 25 multiple choice questions (MCQs). Questions test the understanding of financial concepts and contestants’ ability to apply them in realistic scenarios.

**3.5.** The overall time limit of the Finance (Financial Literacy) part is 60 minutes.

**3.6.** Answers to all 25 MCQs are graded. A correct answer adds 4 raw points, an incorrect answer subtracts 1 point, unanswered questions don't change the score.

#### **4. Business Case**

**4.1.** The competition in business is a team competition and includes the oral presentation of the results. Presentations must be supported by slides. The presentations should be in English.

**4.2.** Case study part is a team competition and lasts for two days — 1) day of preparation; 2) day of the presentation. During the day of preparation, contestants may use any online and offline materials, but it is prohibited to contact other people for help. All teams submit their slides by the deadline specified by the Steering Committee prior to the IEO Opening Ceremony. No changes to slides are allowed after this time.

**4.3.** On the day of presentation, teams are divided into groups. Each group is assigned a separate panel of judges.

**4.4.** The top team from each group is invited to the public Business Case Finals. In the Finals, teams are to present their solution again and be graded by a panel of judges.

**4.5.** Raw scores for the Business Case part are counted as a sum of scores for each criterion. The score for each criterion is the median of scores for this criterion given by each judge of the panel. The final result of a team participating in the Business Case Finals is the maximum of two results: in a group stage and in Finals.

**4.6.** Business case solution consists of several parts. Here are the competencies contestant should acquire, that will be evaluated by the Jury, related to those parts:

**Analytical thinking:** the ability to structurally approach the solution of a complex business problem, correctly dividing it into streams (into directions within which the solution of the problem may lie).

As a rule, the team should divide the case into some large blocks, which, in turn, are further divided and so on to the level of specific problems. A good structure corresponds to the *MECE* principle (mutually exclusive, collectively exhaustive), that is, it covers all possible solutions, but each individual stream does not intersect with others.

**Conceptual thinking:** the ability to build correct hypotheses based on the resulting structure, made by analysis. Here the team checks how ideas respond to the necessary request and correctly address these or other problems of the



enterprise, the team also makes sure that these solutions are feasible and have a common and business sense.

**Quantitative thinking:** no case can be solved without simple but fast calculations and more complex models that illustrate certain analyzes.

**Communication skills:** the ability to correctly build a presentation and to answer questions.

**4.7.** The following literature is recommended for preparation.

Useful literature for case solving:

- The Pyramid Principle, Barbara Minto;
- Crack the Case, David Ohrvall;
- The Trusted Advisor, D. Maister, C. Green, R. Galford.

Useful literature for data analysis:

- The McKinsey Way, Ethan Rasiel;
- Strategic Management, Thompson Strickland;
- The Fifth Discipline, Peter Senge;
- Thinking Fast and Slow, Daniel Kahneman;
- Case in Point, Marc Cosentino;
- BCG on Strategy, C. Stern, M. Deimler.

Useful literature for presentations:

- Say It With Charts, Gene Zelazny;
- Unfolding the Napkin, Dan Roam;
- Visualize This, Nathan Yau;
- The Pyramid Principle, Barbara Minto;
- Slide:ology, Nancy Duarte

**4.8.** In addition to books listed above, it is recommended to study the example cases that were used at the previous Olympiads and can be found here:

<https://ieo-official.org/prepare>. Additional materials for preparation will be provided to the invited teams before the Business Case part.

## **5. Moderation**

**5.1.** The Moderation process regulations are written in clause 3.2 of the IEO Regulations of Competition.

**5.2.** The Moderation is a time-limited process when a representative of the team can discuss the marks set in accordance with the publicly available grading parameters. This means that by the grading parameters there are strict rules on what mark should be set according to the text of the contestant's solution. Proposed solutions and the grading parameters are given to the team leaders to prepare for this process in advance.

The discussion on moderation can be performed in any form, but the comparison of solutions to the grading parameters is advised to be prepared in advance.

Thus, to help the Jury find the works of the contestants and to be able to reevaluate the marks given, we recommend to prepare the following information in advance:

- The contestant's name;
- Tasks, numbers of tasks to be reviewed;
- Grading parameters;
- Contestant's solution with the parts of the solution that were not evaluated in accordance with those parameters underlined.