

**MEMORANDUM**

**To:** Indiana State Board of Education  
**From:** Office of Academics  
**Date:** January 22, 2021  
**Subject:** Quantitative Reasoning Courses Updates

The Indiana Department of Education (IDOE) is seeking to inform the State Board of Education (SBOE) of the following changes for the list of courses identified as quantitative reasoning courses. The updates shared in this memo resulted from a recent cross check of courses identified as quantitative reasoning courses prior to the 2020-2021 school year.

According to graduation requirements, students are required to take a mathematics course or a quantitative reasoning course each year they are enrolled in high school. Per Indiana Administrative Code 511 IAC 6-7.1-1(g), a quantitative reasoning course is defined as a course that advances a student’s ability to apply mathematics in real world situations and contexts and that deepens a student’s understanding of high school mathematics standards. IDOE is tasked with the annual review of the list of qualifying courses that meet this definition. In 2019, educators reviewed the Indiana Academic Standards for Economics (1514) and Global Economics (4558), and each was revised and updated pursuant to Indiana Code 20-31-3-3. The committee of educators determined that Economics and Global Economics may not meet the criteria for quantitative reasoning. Both courses are under review and will be considered quantitative reasoning courses until further notice.

Additionally, Indiana Administrative Code 511 IAC 6-7.1.5 (B) states, “The student is recommended to earn two (2) mathematics credits during the student’s last year in high school. A student who takes mathematics in the senior year is better prepared for mathematics placement exams upon entering a postsecondary education program, apprenticeship program, or the military. A student who takes mathematics in the senior year is: (i) less likely to require remedial math courses following high school; and (ii) more likely to complete a postsecondary program.” IDOE, in partnership with the Indiana Commission for Higher Education (CHE), has done considerable work in the area of mathematics with regards to the transition from high school to postsecondary opportunities, creating new course opportunities, and developing articulation agreements with 2-year and 4-year institutions. As IDOE examines mathematics pathways, IDOE will continue to encourage more students to meet the recommendation for mathematics as outlined in Indiana Administrative Code 511 IAC 6-7.1.5 (B).

Recommended updates include:

<b>Recommended Removals from Quantitative Reasoning List of Courses</b>		
<b>Course Name</b>	<b>Course Number</b>	<b>Reason for Removal</b>
PLTW Cybersecurity	5261	Course no longer offered beginning in the 2020-2021 School Year

PLTW Aerospace Engineering	4816	Course no longer offered beginning in the 2020-2021 School Year
PLTW Civil Engineering and Architecture	4820	Course no longer offered beginning in the 2020-2021 School Year
PLTW Computer Integrated Manufacturing	4810	Course no longer offered beginning in the 2020-2021 School Year
PLTW Digital Electronics	4826	Course no longer offered beginning in the 2020-2021 School Year
PLTW Engineering Design and Development	4828	Course no longer offered beginning in the 2020-2021 School Year
PLTW Principles of Engineering	4814	Course no longer offered beginning in the 2020-2021 School Year
Computer Science II: Informatics	5251	Course name changed to Computer Science III: Informatics for 2020-2021
International Baccalaureate: Geography Higher Level	1584	Course does not meet criteria for quantitative reasoning. Change begins with the <b>2025</b> cohort of students.
Economics	1514	The status of Economics as a QR course is under review. Economics remains a QR course until further notice.
Global Economics	4558	The status of Global Economics as a QR course is under review. Global Economics remains a QR course until further notice.

<b>Recommended Additions to Quantitative Reasoning List of Courses</b>		
<b>Course Name</b>	<b>Course Number</b>	<b>Reason for Addition</b>
Construction Trades II	5578	Course matches criteria for quantitative reasoning.
Computer Science III: Cybersecurity Capstone	5253	New name in 2020-2021; Course matches criteria for quantitative reasoning.
Computer Science III: Databases	5250	New name in 2020-2021; Course matches criteria for quantitative reasoning.
Robotic Design and Innovation	4728	Course matches criteria for quantitative

		reasoning.
Advanced Placement: Computer Science Principles	3020	Course matches criteria for quantitative reasoning.
Computer Science III: Informatics	5251	Course was formerly Computer Science II: Informatics prior to 2020-2021.
International Baccalaureate Biology Higher Level	3032	Course matches criteria for quantitative reasoning.
International Baccalaureate Biology Standard Level	3034	Course matches criteria for quantitative reasoning.

The entire list of quantitative reasoning courses may be found here and edited upon approval:  
<https://www.doe.in.gov/standards/applied-mathematics>.

For questions about the changes listed in the memorandum, please contact J. Matthew Walsh, Liberal Arts Specialist ([jwalsh1@doe.in.gov](mailto:jwalsh1@doe.in.gov)).