

YOU'RE INVITED TO CONSIDER

the

**KALAMAZOO AREA
MATHEMATICS AND
SCIENCE CENTER
(KAMSC)**

2021-2022

*INFORMATION FOR APPLICANTS
AND PARENTS*



Dear Parents and Guardians:

The Kalamazoo Area Mathematics and Science Center (KAMSC) was established in 1986 with a two million dollar grant from the former Upjohn Company in honor of its centennial anniversary. Its mission is to deliver educational experiences to eligible students capable of benefiting from a highly rigorous, sequential and integrated exposure to mathematics, science and technology in an environment where respect for self and others is valued. Thirty-five years later, KAMSC is still an exciting option in the community for those young minds interested in mathematics and science.

Current eighth graders may apply for the approximately eighty seats available for the ninth grade class entering in fall 2021. In addition, current ninth, tenth and eleventh graders have the option to apply for a limited number of seats in the upper grade levels, based on availability. During the current 2020-2021 school year, KAMSC has nearly three hundred students enrolled in grades nine through twelve.

We invite you to review this information in order to determine whether or not your child is interested in applying for this educational opportunity. You may want to consult with your student's current science and mathematics teachers, or direct additional questions to the Center's staff. We invite you to review the KAMSC web site, kamscc.org, as well.

Sincerely,

A handwritten signature in cursive script that reads "Michael Tanoff".

Dr. Michael A. Tanoff, Director

THE PROGRAM

Students attend the KAMSC program for one-half of each school day and take their mathematics, science and technology courses at the Center. All remaining courses are taken at their district, private, parochial or home high schools, with these schools often transporting students to and from the Center. Students ultimately receive their diplomas from their district, private, parochial or home high schools, but receive an additional certificate of completion from KAMSC.

Course offerings for the ninth-grade class center primarily on the instruction of biology and integrated mathematics. A third course entitled “Information Technology” introduces technology fundamentals while challenging students to incorporate applications in their mathematics and science classes.

WHO IS ELIGIBLE

By signed agreement between the nine public school districts of Kalamazoo County and the Kalamazoo Regional Educational Service Agency (KRESA), enrollment shall be limited to students who 1) reside within the boundaries of the nine signatory school districts and 2) attend any of the public, non-public, or home schools located within the boundaries of the nine signatory school districts. If unassigned student positions exist after considering applications from the foregoing, the Executive Council may, in its sole discretion, consider, in person or electronically, the recommendation of the KAMSC director to enroll students residing outside of the service area, but only in accordance with established policy.

Students who wish to apply for the program should have high interest and ability in participating in a rigorous, accelerated program of study in both mathematics and science. Students should be enrolled in high school level Algebra or a higher-level math class during their eighth grade year.

HOW STUDENTS ARE SELECTED

The application packet is only available online and may be accessed from the KAMSC website (kamsc.org) beginning **April 30**. The application packet includes forms to be completed by the student, parent/guardian, the student’s science, mathematics and English teachers, and counselor. If you have questions on how to complete your application forms, a help session will be held on **Tuesday May 11**, via Zoom at 6:30 pm. The Zoom connection information will be made available through the kamsc.org web site. All parts of the application must be submitted to the KAMSC office by **Friday May 21, 2021**. Note that students will also be asked to participate in a synchronous Zoom session during which they will provide a writing sample in response to a selected prompt. Dates and times for this synchronous Zoom session will be provide through the kamsc.org web site.

During **June 2021**, application documents are reviewed by an independent review panel, in order to determine potential for success in the KAMSC program. The KAMSC faculty is not involved in the selection process in any way. Each applicant will receive a letter indicating whether or not they are being invited to attend KAMSC. These letters are scheduled to be mailed in **late June 2021**.

All applicants who accept an invitation to attend KAMSC will take an Algebra preparation test at a point, yet to be determined, over the summer. If a student's score is below a required minimum, the student is required to attend and pass a self-paced online Algebra refresher class, tentatively scheduled for late in the summer.

THE APPLICANT REVIEW PANEL

The Applicant Review Panel is composed of local educators and professionals including area mathematics, science and English teachers, counselors, individuals from higher education, business and industry professionals, scientists, mathematicians and community leaders.

THE KAMSC CURRICULUM

Although the curriculum is dynamic, building with the experience of the staff and the students, certain basic elements have been established by a curriculum sub-committee and approved by the Center's Advisory Committee.

1. The Center provides a program in mathematics, science, and technology which no individual school in the service area can provide. The program is unique in the area.
2. The Center's curriculum follows two paths simultaneously:
 - a. One component provides accelerated instruction in standard science and mathematics principles. Every effort is made to ensure that students have mastered basic concepts and skills in science and mathematics.
 - b. The other component concentrates on providing an enriched approach to learning, encouraging active student participation in challenging and interesting topics and projects in each discipline.
3. Communication skills (reading, speaking, writing, listening and observing, problem solving and thinking skills) are an integral part of the curriculum.
4. Students will be provided with many opportunities to perform experiments and do research at the Center, both with the Center's staff and through partnership with professional scientists, mathematicians and other experts from outside the Center.
5. The Center will offer courses in mathematics, physical sciences, biological sciences, earth sciences, computers and related fields.
6. The curriculum offered will be embedded in a technology enriched environment that includes accessing the Internet and global communication via e-mail and platforms such as Google Classroom and Remind. The curriculum will be innovative in both course content and in methods of delivery.
7. Computer usage (beginning programming, laboratory interfacing and educational software applications) will be an essential component in the education of students at the Center.

8. If a student progresses beyond the Center's program, she/he will be encouraged to take courses at Kalamazoo College, Western Michigan University and other schools of higher education in the area.

PATHS TO LEARNING

Students take three classes each semester at the Center. They become eligible to take their first elective class during their junior year.

TYPICAL FOUR-YEAR SCHEDULE

9th GRADE

KAMSC Biology (Honors)
KAMSC Information Technology (Honors)
KAMSC Integrated Mathematics I/Geometry or Integrated Mathematics II/Alg. II or Integrated Mathematics III/Pre-Calculus (all Honors)
KAMSC Research Science

10th GRADE

KAMSC Chemistry (Honors)
KAMSC Computer Studies (Honors)
KAMSC Integrated Mathematics II/Alg. II or Integrated Mathematics III/Pre-Calculus (both Honors) or AP Calculus
KAMSC Research Science

11th GRADE

KAMSC Physics (Honors)
KAMSC Integrated Mathematics III/Pre-Calculus (Honors) or AP Calculus or KAMSC Advanced Calculus (Honors)
KAMSC Research Science

12th GRADE

AP Calculus or KAMSC Advanced Calculus (Honors)

ELECTIVES LIST FOR 11th & 12th GRADE

KAMSC Biochemistry (Honors)
KAMSC Biomedical Science (Honors)
AP Environmental Sciences
KAMSC Organic Chemistry (Honors)
AP Chemistry
AP Biology
KAMSC Materials Science
KAMSC Human Genetics (Honors)
AP Physics C Mechanics
AP Physics C Electricity and Magnetism
KAMSC Independent Research
AP Computer Science A
KAMSC Advanced Computer Science (Honors)
AP Statistics
KAMSC Bioethics (Honors)
KAMSC Astronomy (Honors) (Seniors)
KAMSC Geology (Honors) (Seniors)
KAMSC Microbiology (Honors)
KAMSC Discrete Math (Honors)
KAMSC Advanced Calculus (Honors)
KAMSC Complex Variables (Honors)
KAMSC Differential Equations (Honors)

KAMSC Information Technology is a survey course designed to integrate select components of math and science. Students utilize diverse technologies to explore, develop, analyze and produce appropriate products. Applications include software utilization; computers as a scientific tool; data analysis; research preparation and presentation; and various media technologies. The sophomore technology class, KAMSC Computer Studies, provides students with a survey of computer science concepts and includes an introduction to computer programming in C++ and Java. Emphasis is placed on development of problem solving and critical thinking skills.

During their junior and senior years, each student may select one and two electives, respectively.

SAMPLE NINTH GRADE COURSE OUTLINES

To provide you with an idea of the intensity and content of core courses, we have provided two sample topic course outlines:

KAMSC Integrated Mathematics I (Honors)

- Problem Solving
- Introduction to Programming with Graphing Calculator
- Exploratory Data Analysis
- Relations, Functions and their Graphs
- Basic Concepts in Geometry
- Geometry with Coordinates
- Introduction to Transformational Geometry
- Introduction to Probability
- Mathematical Language and Proof
- Congruence of Plane Figures
- Area and Volume
- Similarity of Plane Figures
- Circles and Spheres
- Introduction to Trigonometry

KAMSC Biology (Honors): Suggested Units

- Basic Biology Lab Techniques
- Ecology and Botany
- Chemistry / Biochemistry
- Energy Transformations
- Cell Biology
- Microbiology
- Natural Selections
- Human Systems
- Genetics

CENTER OFFERS EXPANDED TECHNOLOGY

From standard beakers and test tubes to sophisticated scientific instruments, state-of-the-art multi-media equipment, computers and graphing calculators, the fourth floor of the Community Education Center (CEC) is fully equipped to educate tomorrow's scientists and mathematicians.

The Center currently includes four lecture/discussion areas, two computer laboratories, four laboratory/discussion areas, a reading resource area, two special project labs and an administrative office. There is a 160-seat multi-media presentation center, bringing the Center to a total of 24,820 square feet.

RESEARCH EXPERIENCE

The Kalamazoo Area Mathematics and Science Center is committed to the integration of subject matter with research and design skills. Each student participates in a coordinated sequential four year research experience which includes developing skills in accurate and reliable observations, use of professional mathematics and science literature, and practicing experimental design and analysis methods. A record of research outcome based expectations is maintained in the student's portfolio as proof of completion and evaluation of this research experience. The research outcome based expectations include:

- *Experiences with scientific research methods*
- *Literature review*
- *Use of scientific technology*
- *Techniques used in writing professional reports and papers*
- *Participating in conferences and seminars*
- *Using research design and statistical analysis techniques*
- *Completion of research projects*
- *Presentation of research findings*

