

THE GATTON ACADEMY

OF MATHEMATICS & SCIENCE IN KENTUCKY



2012-13 SCHOOL PROFILE

Ranked #1 Nationally among Newsweek's "America's Best High Schools"
A Washington Post "Public Elite" High School (2009, 2010, 2011, 2012)

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GATTON ACADEMY CLASS OF 2013 AT A GLANCE

Mid 50% Range*

ACT Combined

Unweighted Cumulative GPA

High

33

3.96

Low

30

3.66

Average

31

3.79

**Information as of June 2012, including all 70 members of the Gatton Academy's Class of 2013*

OVERVIEW

The Gatton Academy of Mathematics and Science in Kentucky is a public, residential high school for juniors and seniors who have demonstrated a desire to pursue advanced careers in science, technology, engineering, and mathematics (STEM) fields in addition to exceptional educational performance.

Instead of spending their junior and senior years in traditional high schools, students enroll in the Gatton Academy and live in Schneider Hall, a uniquely dedicated residence hall. Taking courses offered by Western Kentucky University, their classmates are fellow Gatton Academy students and WKU undergraduate students.

The program, which began in 2007 with 120 students and now numbers 126, is Kentucky's only full tuition-paid, residential program for students who are gifted in mathematics and science. The Gatton Academy is one of sixteen state-supported residential high schools with an emphasis in STEM subjects in the United States. The Gatton Academy is an institutional member of the National Consortium of Specialized Secondary Schools of Mathematics, Science, and Technology.

MISSION

Western Kentucky University houses the Carol Martin Gatton Academy of Mathematics and Science in Kentucky. The mission is to offer an appropriately challenging education in a residential program for bright, highly motivated Kentucky high school students who have demonstrated interest in pursuing careers in science, technology, engineering, and mathematics.

The Gatton Academy also seeks to provide its students with the companionship of peers; to encourage students to develop the creativity, curiosity, reasoning ability, and self-discipline that lead to independent thought and action; and to aid students in developing integrity that will enable them to benefit society.

The goal is to enable Kentucky's exceptional young scientists and mathematicians to learn in an environment which offers advanced educational opportunities, preparing them for leadership roles in the Commonwealth of Kentucky.



STUDENT SELECTION

The Gatton Academy admits approximately 60 Kentucky residents each year with equal division between male and female students for a total of 126 students. Gatton Academy applicants are high school sophomores who have completed at least Geometry, Algebra I, and Algebra II by the end of their sophomore year. Approximately one-quarter of students admitted to the Gatton Academy have completed coursework in Trigonometry, Calculus, or more advanced mathematics. Close to 200 students apply for the limited number of available openings in each class. On average, students admitted to the Gatton Academy have ACT scores nine points higher than graduating Kentucky high school seniors.

Students are selected through a competitive admissions process based upon several criteria. SAT and/or ACT scores complement a student's academic grades from ninth and tenth grades to demonstrate preparedness for university-level study at WKU. Since the Gatton Academy is a residential school environment, family support of a student's decision to apply is also considered.

In a holistic approach to selecting students who will benefit from an advanced living/learning environment, the admissions committee seeks students who possess maturity, passion, and individuality—key characteristics in creating a vibrant community of learners. Interest in advanced careers in science, technology, engineering, and math as well as personal experiences are shared through student responses to application essay questions, recommendations from teachers, administrators, and community members,

Gatton Academy and WKU staff members as well as educators, business leaders, and other program stakeholders from throughout Kentucky work together to evaluate the annual pool of applicants. Reviewers examine both statistical and anecdotal data from the academic and personal accomplishments of each applicant in order to determine the potential for success in the academic and social communities the Gatton Academy affords. In order to assist school districts from throughout the state and to create a student body representative of Kentucky's diversity, the admissions committee also considers extenuating circumstances, geographic, and other demographic variables in its review process.

STUDENT TRANSCRIPTS

The Gatton Academy transcript includes grades earned from the home high school (during students' freshman and sophomore years) and the grades earned from the Gatton Academy through WKU (junior and senior years). To determine a cumulative GPA, both unweighted and weighted, we use the following guidelines:

- To merge from the university system to a high school transcript, we assign the value of one high school credit for every 3 college hours.
- After determining the quality points from both the home high school and WKU, a cumulative GPA is calculated on a 4.0 scale.
- To create a weighted GPA, we add a quality point for each course taken through WKU that is part of the core curriculum (math, science, social studies, English, or foreign language).

The Gatton Academy does not use a ranking system.

ACADEMIC OVERVIEW

The academic rigor of the Gatton Academy is meant to challenge students to excel at the highest levels, while drawing connections between the classroom and real-world research options. Students are engaged in a core of math and science university courses that are supplemented with additional coursework in arts, humanities, and other elective subjects. The Gatton Academy curriculum provides students with a foundation for future study in a variety of STEM areas. Each entering junior will be required to complete 12 courses in STEM subjects during their Academy study as well as additional classes in the arts, humanities, and social sciences necessary to meet the Kentucky Department of Education's pre-college curriculum. In addition, students are able to explore the academic offerings of WKU through other coursework. Students are required to attend the weekly Gatton Academy seminar, which offers rotating topics each semester and is led by professors, Academy staff members, and other professionals.

CURRICULUM

Mathematics (3-4 Courses)

Students will be assigned their introductory math course based on prior coursework and placement exam scores administered by the WKU Department of Mathematics.

Math 117	Trigonometry (3 Hours)
Math 136	Calculus I (4 Hours)
Math 137	Calculus II (4 Hours)
Math 237	Multivariable Calculus (3 Hours)
Math 307	Introduction to Linear Algebra (3 Hours)
Math 371	Computational Problem Solving (3 Hours)

Core Sciences (5 Courses)

Students must complete a minimum of one course from each core science area and at least one two-course introductory sequence.

Biology 120/121	Biological Concepts: Cells, Metabolism, and Genetics/Lab (4 Hours)
Biology 122/123	Biological Concepts: Evolutions, Diversity, Ecology/Lab (4 Hours)
Comp. Sci. 180	Computer Science I/Lab (4 Hours)
Comp. Sci. 181	Computer Science II (3 Hours)
Chemistry 120/121	College Chemistry I/Lab (5 Hours)
Chemistry 222/223	College Chemistry II/Lab (5 Hours)
Physics 255/256	University Physics I/Lab (5 Hours)
Physics 265/266	University Physics II/Lab (5 Hours)

STEM Electives (3-4 Courses)

Students may complete their four required STEM electives and associated labs in the following areas: agriculture;

architecture; astronomy; biology; chemistry; computer science; engineering; geography; geology; health sciences; manufacturing; mathematics; meteorology; physics; and/or psychology.

English (2 Courses)

Students who score 29 or higher on the English portion of the ACT or a 670 on the critical reading portion of the SAT receive three hours of credit for English 100 and begin with English 200.

English 100	Introduction to College Writing (3 Hours)
English 200	Introduction to Literature (3 Hours)
English 300	Writing in the Disciplines (3 Hours)

Seminar (3 Courses)

Academy of Math & Science 175	Junior Seminar (1 Hour)
Academy of Math & Science 175	Junior Seminar (1 Hour)
Academy of Math & Science 175	Senior Seminar (1 Hour)

Pre-College Requirements (As Needed)

Students will complete additional pre-college requirements as mandated by the Commonwealth of Kentucky and their sending institutions based on previous coursework in high school.

History 119	Western Civilization to 1649 (3 Hours)
History 120	Western Civilization Since 1649 (3 Hours)
History 241	US History Since 1865 (3 Hours)
Political Science 110	American National Gov't (3 Hours)
Physical Education 100	Health and Wellness (3 Hours)
Art 100	Art Appreciation (3 Hours)
Music 120	Music Appreciation (3 Hours)
Global Languages	(Arabic, Chinese, French, German, Ancient Greek, Hebrew, Japanese, Latin, Russian, Spanish & Swahili)

Electives

After the first semester, Gatton Academy students in good standing are able to take up to 19 credit hours free of charge, including optional electives. Students wishing to take more than 19 hours are approved on an individual basis.

Graduation Requirements

In order to graduate with a diploma from the Gatton Academy students must meet the following requirements:

1. Pass all 12 required STEM courses with a grade of "C" or higher.
2. Pass all other coursework with a grade of "C" or higher.
3. Complete the pre-college curriculum as required by the Commonwealth of Kentucky and their sending institution.
4. Maintain a cumulative Gatton Academy GPA of 2.75 or higher.

In addition to the standard requirements, students wishing to graduate with Honors must meet the following requirements:

1. Maintain a cumulative Gatton Academy GPA of 3.4 or higher;
2. Complete 15 hours of service learning each semester; and
3. Successfully completes a supervised research project lasting at least two semesters.

In addition to the standard requirements, students wishing to graduate with Distinction must meet the following requirements:

1. Maintain a cumulative Gatton Academy GPA of 3.7 or higher;
2. Complete 15 hours of service learning each semester;
3. Successfully completes a supervised research project lasting at least two semesters; and
4. Produces a research outcome that takes the form of a presentation or poster presentation at an academic conference, a publication, or other approved display of the student's research.

STANDARDIZED TEST PERFORMANCE

ACT Composite Scores

Class of 2008
Class of 2009
Class of 2010
Class of 2011
Class of 2012
Class of 2013

Sophomore Admission

27.1*
26.5
28.8
28.8
29.0
28.9

Junior Assessment

n/a**
28.2
29.9
30.0
29.9
30.8***

Senior Exit

29.2
29.2
31.1
31.2
32.0

*Members of the Class of 2008 were admitted during their junior year.

**Kentucky began administering the ACT to all public high school juniors in 2008.

***Current scores as of June 2012.

NATIONAL MERIT

Semifinalists

Class of 2008	6
Class of 2009	4
Class of 2010	12
Class of 2011	11
Class of 2012	12

The merit status is based upon the PSAT, which students complete in October of the junior year.

60% OF THE CLASS OF 2013 STUDIED ABROAD DURING THEIR JUNIOR YEAR AT THE GATTON ACADEMY. BY GRADUATION, 75% OF STUDENTS WILL HAVE COMPLETED A GLOBAL LEARNING EXPERIENCE.

THE NATION'S LEADER IN EDUCATIONAL EXCELLENCE AND INNOVATION

In 2012, The Gatton Academy was named the nation's top public high school in *Newsweek/The Daily Beast's* annual survey of "America's Best High Schools." The Gatton Academy ranked #1 among 1,000 high schools and set the curve for the metrics used in the methodology: graduation rate (100%); average AP-level coursework (4.7 per student); college matriculation (100%); and average ACT (31.2 for Class of 2011). While the ranking speaks to quality within the program, the *Newsweek* methodology only begins to scratch the surface on the Gatton Academy experience. Graduates of the school earn an average of over 70 hours of college credit during the two-year program of study. Each year, the student body earns over 4,000 hours of college credit, with one-third of those hours coming from coursework above AP level. Since 2009, The Gatton Academy has also been named to the *Washington Post's* list of "Public Elite" high schools, a list which showcases public, selective high schools.

RIGOR OF CURRICULUM

Most students enrolling at the Gatton Academy bring with them very high grade points averages (typically 3.9 on a 4.0 scale) from their traditional high schools. As expected with taking more rigorous coursework at WKU, their average GPA tends to drop by a small measure. Gatton Academy graduates will compete with students from traditional high schools for admission (and scholarships) into four-year colleges and universities. The Gatton Academy calculates an unweighted GPA based on a combination of a student's prior high school grades and those grades earned while studying at the Gatton Academy. A weighted GPA is also calculated, giving Gatton Academy courses in math, science, social studies, language arts, and foreign language an additional quality point.

SCHOLARLY RESEARCH

One of the added values of study at the Gatton Academy is the chance to engage in real, undergraduate-

level research projects while at WKU. 91% of graduates complete a sponsored research project under the mentorship of a university faculty member.

Gatton Academy students are encouraged to participate in research both during the academic year and through internships during the summer months. Research conducted on-campus during the academic year allows students to pursue their specific scientific interests beyond the curriculum, working under the supervision of a university professor. The Gatton Academy's strategic partnership with Western Kentucky University benefits our students by offering abundant research opportunities throughout campus. Gatton Academy students have access to research opportunities in any of the following departments: Agriculture; Architecture and Manufacturing Sciences; Biology; Chemistry; Engineering; Geography and Geology; Mathematics and Computer Science; Physics and Astronomy; and Psychology. Gatton Academy students

are encouraged to use their research experiences as a springboard for scientific competitions and to contribute to the scientific community. Our students are encouraged to enter the Siemens Competition and the Intel Science Talent Search, both STEM-based research competitions for high school students. Furthermore, our students have the chance to present their research at local, regional, and national conferences. Some students have even published scholarly papers with their research professors. Being a part of a university research project, working in a WKU lab, and developing strong relationships with professors is part of the unique value that can be a part of the Academy experience.

Two semesters or more of research, it should be noted, is a requirement for all Gatton students who wish to receive the recognition of Honors or Honors with Distinction at graduation.

COLLEGE MATRICULATION FOR THE CLASSES OF 2008-12

Agnes Scott College	Decatur, GA	1	Purdue University	West Lafayette, IN	2
Auburn University	Auburn, AL	4	Rose-Hulman Institute of Technology	Terre Haute, IN	2
Belmont University	Nashville, TN	1	Saint Louis University	St. Louis, MO	1
California Institute of Technology	Pasadena, CA	1	Sewanee: The University of the South	Sewanee, TN	1
Case Western Reserve University	Cleveland, OH	1	Smith College	Northampton, MA	2
Cedarville University	Cedarville, OH	1	Stanford University	Stanford, CA	1
Centre College	Danville, KY	2	The University of Alabama-Tuscaloosa	Tuscaloosa, AL	1
College of William and Mary	Williamsburg, VA	1	The University of Alabama-Birmingham	Birmingham, AL	1
Cornell University	Ithaca, NY	1	The University of North Carolina	Chapel Hill, NC	1
Davidson College	Davidson, NC	1	Thomas More College	Crestview Hills, KY	1
Faulkner University	Montgomery, AL	1	Transylvania University	Lexington, KY	4
Florida Institute of Technology	Melbourne, FL	1	Union University	Jackson, TN	1
Florida State University	Tallahassee, FL	1	United States Naval Academy	Annapolis, MD	2
Georgia Institute of Technology	Atlanta, GA	4	University of California at Berkeley	Berkeley, CA	1
Harvard University	Cambridge, MA	1	University of Chicago	Chicago, IL	3
Hendrix College	Conway, AR	1	University of Delaware	Newark, DE	1
Indiana University at Bloomington	Bloomington, IN	2	University of Kentucky	Lexington, KY	72
Kenyon College	Gambier, OH	1	University of Louisville	Louisville, KY	27
Kettering University	Flint, MI	1	University of Miami	Coral Gables, FL	2
Lipscomb University	Nashville, TN	1	University of Mississippi	University, MS	1
Marymount Manhattan College	New York, NY	1	University of Oklahoma	Norman, OK	1
Massachusetts Institute of Technology	Cambridge, MA	3	University of Pittsburgh	Pittsburgh, PA	1
Miami University	Oxford, OH	1	University of Rochester	Rochester, NY	1
Mississippi University for Women	Columbus, MS	1	University of Tennessee	Knoxville, TN	1
Morehead State University	Morehead, KY	2	University of Texas, Dallas	Dallas, TX	1
Mount Holyoke College	South Hadley, MA	1	University of Washington	Seattle, WA	1
Murray State University	Murray, KY	1	Vanderbilt University	Nashville, TN	7
New York University	New York, NY	1	Virginia Polytechnic Institute	Blacksburg, VA	1
North Carolina State University	Raleigh, NC	1	Washington University in St. Louis	St. Louis, MO	1
Northern Kentucky University	Highland Heights, KY	1	Webster University	St. Louis, MO	1
Northwestern College	Chicago, IL	1	Western Kentucky University	Bowling Green, KY	79
Princeton University	Princeton, NJ	1	Worcester Polytechnic Institute	Worcester, MA	1

100% OF GATTON ACADEMY GRADUATES MATRICULATE TO A FOUR-YEAR UNIVERSITY.