YOU HAVE RAISED THEM.
WE HAVE TAUGHT THEM.
WHAT IN THE WORLD WILL THEY DO NEXT?

Apply online at gifted.msu.edu
GATE THROUGH THE YEARS...

MSU GATE
Established by Dorothy Lawshe
1986

CHAMP
Est. 1986

High Achievers Program
1987-2014

MST
Est. 1989

Established by Dorothy Lawshe
1986

Dorothy Lawshe Retires
1998

Jenny McCampbell
Second GATE Director
1998

Dual Enrollment
under GATE direction
1998

MSU GATE
Established by Dorothy Lawshe
1986

Kathee McDonald
Third GATE Director
2005

Dual Enrollment
under GATE direction
1998

MSU GATE
Established by Dorothy Lawshe
1986

Kathee McDonald
Third GATE Director
2005

SHIGA
Student Exchange
2003-2013

Kathee McDonald
Third GATE Director
2005

SHIGA
Student Exchange
2003-2013

Kathee McDonald
Third GATE Director
2005

SHIGA
Student Exchange
2003-2013

Kathee McDonald
Third GATE Director
2005

SHIGA
Student Exchange
2003-2013

Kathee McDonald
Third GATE Director
2005

Yesterday, today, and years to come...

WHAT IN THE WORLD WILL GATE DO NEXT?

30th Anniversary
2016

Susan Sheth
Fourth GATE Director
2013

Susan Sheth
Fourth GATE Director
2013

Susan Sheth
Fourth GATE Director
2013

Susan Sheth
Fourth GATE Director
2013

Susan Sheth
Fourth GATE Director
2013

Susan Sheth
Fourth GATE Director
2013

Susan Sheth
Fourth GATE Director
2013

Susan Sheth
Fourth GATE Director
2013

Susan Sheth
Fourth GATE Director
2013
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ABOUT GIFTED AND TALENTED EDUCATION AT MICHIGAN STATE UNIVERSITY

Gifted and Talented Education (GATE) programs at MSU offer differentiated educational experiences for students in grades 7-12.
ABOUT GIFTED AND TALENTED EDUCATION AT MICHIGAN STATE UNIVERSITY

ACADEMIC SCHOOL YEAR PROGRAMS

Space is limited in academic year programs and the application process is competitive.

Our school year programs challenge gifted middle and high school students in math, literature, and language. These programs are designed to replace high school curricula, allowing students to complete four years of Michigan High School Content Expectations (HSCE) and Common Core National Standards in just two years of study. Courses meet once a week and are taught by MSU instructors. Students are expected to stay with the program for the full two-year cycle. After completion, students are prepared to take advanced placement (AP) courses at their high school or dual enroll through MSU or another institution.

Eligibility varies by program but is generally determined by ACT or SAT scores and other requirements. See GATE Program Requirements and Responsibilities on page 5 for details.

School year programs include:

Cooperative Highly Accelerated Mathematics Program (CHAMP)
For students in grades 7-10, offered on campus. The CHAMP program is also available at Lapeer schools in eastern Michigan (LCHAMP), through a partnership with Lapeer ISD.

Intensive Studies in Humanities, Arts, Language, and Literature (ISHALL)
For students in grades 7-10, offered on campus. ISHALL-Novis is available at the Tollgate Education Center in Novi.

Langue pour Étudiants Avancés de Français (LEAF)
For students in grades 7-10, offered as a hybrid class with mostly online curriculum, as well as in-person meetings on campus, to better accommodate students not from the local area.

Amo Linguam Latinam (ALL)
For Latin students in grades 7-10, offered as a hybrid class with mostly online curriculum, as well as in-person meetings on campus, to better accommodate students not from the local area.

Novi Programs (CHAMP and ISHALL)
For students in grades 7-10, CHAMP-Novis (Math) and ISHALL-Novis (English) programs are available at the Tollgate Education Center in Novi. See more information on page 39.

SUMMER PROGRAMS

Summer programs fill up quickly! Make sure to submit your application materials early!

GATE summer programs are designed to help students take advantage of the warm summer months in fun, constructive ways. Programs include commuter and residential options. Summer programs offer a chance to experience advanced coursework and college life in a fun, relaxing environment for high achieving middle and high school students.

Summer programs include:

Crime Scene Investigation (CSI) Forensics Camp
On hiatus for Summer 2017 – Check out the MST@MSU program, which will offer a CSI class as an option!

Math, Science, and Technology (MST@MSU)
July 9 - July 22 • A two-week residential or commuter program for students in grades 7-9. MST classes and workshops are offered in a wide range of topics, from astrophysics to archery. See individual course descriptions for details. Enrollment for MST@MSU includes two classes plus one workshop.

Future DOcs
June 18 - June 24 • A one-week commuter program for students in grades 7-9. This program fosters an interest in STEM fields and health care professions. *Future DOcs does not have rolling admissions. All applications will be reviewed after the May 3 deadline.

Gifted University for Parents and Precocious Youth (GUPPY)
June 24 - June 25 • GUPPY is a weekend program offering students in grades 4-6, ages 9-11, a variety of accelerated exploratory educational presentations and hands-on experiences in Michigan State University’s laboratories and classrooms. Sunday will feature informational presentations conducted by gifted experts to provide information and assistance for parents raising gifted children.

Ingham Intermediate School District’s Office of Talent Development
Classes offered through Ingham ISD have a range of opportunities for students in grades 4-10.

Dual Enrollment: Students currently in grades 9-12 can dual enroll in MSU college courses and receive high school credit and college credit either in the summer or during the academic year.
Bright Thinkers • Future Innovators
Age 4 – Grade 12

ctd.northwestern.edu
847/491-3782

Center for Talent Development at Northwestern University is dedicated to helping gifted students, age 4 through grade 12, reach full potential. We provide research-based assessment, advanced programs, and resources to enhance a child’s schooling. Our pathways approach leads students on a journey of intellectual, emotional, and social growth.

• Assessment to identify strengths
• Rigorous, individualized online courses
• Weekend programs
• Residential and commuter summer programs on top-tier college campus
• Leadership and civic engagement programs

For Educators!
• Online professional development modules in gifted education
• Job opportunities (weekend, summer, and online)
GATE PROGRAM REQUIREMENTS AND RESPONSIBILITIES

All GATE applicants must submit a recent grade report with strong grades/GPA, a teacher recommendation form, and an ACT or SAT score report. Please see the chart below for minimum score requirements on the ACT or SAT tests. An IQ score is also acceptable instead of the ACT or SAT.

### Minimum Test Scores Required for GATE Programs (Grades 7-9)

<table>
<thead>
<tr>
<th>Program</th>
<th>ACT Math</th>
<th>ACT English</th>
<th>ACT Reading</th>
<th>ACT Composite</th>
<th>SAT Math (Old*)</th>
<th>SAT Reading (Old*)</th>
<th>SAT Total (Old*)</th>
<th>SAT Math (New**)</th>
<th>SAT Evidence-Based Reading and Writing (New**)</th>
<th>SAT Total (New**)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHAMP</td>
<td>21</td>
<td>x</td>
<td>x</td>
<td>23</td>
<td>530</td>
<td>x</td>
<td>1010</td>
<td>560</td>
<td>x</td>
<td>1090</td>
</tr>
<tr>
<td>ISHALL</td>
<td>x</td>
<td>21</td>
<td>22</td>
<td>x</td>
<td>x</td>
<td>520</td>
<td>x</td>
<td>x</td>
<td>560</td>
<td>x</td>
</tr>
<tr>
<td>LEAF</td>
<td>x</td>
<td>21</td>
<td>22</td>
<td>x</td>
<td>x</td>
<td>520</td>
<td>x</td>
<td>x</td>
<td>560</td>
<td>x</td>
</tr>
<tr>
<td>ALL</td>
<td>x</td>
<td>21</td>
<td>22</td>
<td>x</td>
<td>x</td>
<td>520</td>
<td>x</td>
<td>x</td>
<td>560</td>
<td>x</td>
</tr>
<tr>
<td>MST</td>
<td>19</td>
<td>x</td>
<td>x</td>
<td>20</td>
<td>520</td>
<td>x</td>
<td>960</td>
<td>550</td>
<td>560</td>
<td>1090</td>
</tr>
<tr>
<td>Future Docs</td>
<td>19</td>
<td>x</td>
<td>x</td>
<td>20</td>
<td>520</td>
<td>x</td>
<td>960</td>
<td>550</td>
<td>560</td>
<td>1090</td>
</tr>
</tbody>
</table>

*The OLD SAT scores are for tests taken in January 2016 or before. **The NEW SAT scores are for tests taken in March 2016 and after.

### Test Scores Accepted for the GUPPY Program (Grades 4-6)

<table>
<thead>
<tr>
<th>Program</th>
<th>PSAT 8/9 Math</th>
<th>PSAT 8/9 Reading</th>
<th>NNAT 90th Percentile</th>
<th>IOWA 95th Percentile</th>
<th>NWEA 95th Percentile</th>
<th>MSTEP Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>GUPPY</td>
<td>410</td>
<td>410</td>
<td>90th Percentile</td>
<td>95th Percentile</td>
<td>95th Percentile</td>
<td>Level 4</td>
</tr>
</tbody>
</table>
Responsibilities of Participants

Students
- Attend classes regularly
- Complete assigned homework regularly
- Keep parent(s)/guardian(s) informed of weekly graded homework and quizzes
- Attend labs as desired or assigned
- Exhibit appropriate classroom behavior
- Maintain satisfactory level of performance in regular school course work

Parents/Guardians
- Transport student to and from class
- Attend an initial information session, orientation session, and conferences
- Support and encourage the student
- Review weekly graded homework and quizzes with the student
- Communicate any problems to the instructor
- Provide student with access to a computer, a printer, and the Internet. For CHAMP, provide student with a graphing calculator

Local School District
- Release students to attend class at designated location during their school day
- Agree that these classes will be accepted in lieu of in-school required subject classes
- Recognize this course of study and record credits and grades on high school transcripts
- Grant high school credit for demonstrated mastery of content (up to four years of the subject)
- Identify a local district contact person for the program

Note: For acceptance to GATE Programs, students need to meet the criteria for the ACT or SAT. Students only need to take and submit scores for one of these tests.

ACT/SAT Testing Providers

ACT dates:
February 11, April 8, and June 10, 2017

SAT dates:
January 21, March 11, May 6* and June 3, 2017

For more information and to register go to:
SAT: collegeboard.org
ACT: act.org
NUMATS: ctd.northwestern.edu/numats
(Northwestern University Midwest Academic Talent Search)

* MSU is not a test center location for the May 6 test date.
WHAT TO EXPECT FROM YOUR GATE PROGRAM

GATE programs are designed to provide educational experiences that allow gifted students to develop intellectually, to cultivate social relationships, and to expand their understanding of the world.

Academic Integrity

GATE programs adhere to Michigan State University expectations about academic integrity.

Academic integrity is honest and responsible scholarship. Students are expected to submit original work and give credit to other peoples’ ideas. Maintaining academic integrity involves:

- Creating and expressing your own ideas in course work
- Acknowledging all sources of information
- Completing assignments independently or acknowledging collaboration
- Accurately reporting results when conducting your own research or with respect to labs
- Honesty during examinations

Academic integrity is the foundation of university success. Learning how to express original ideas, cite sources, work independently, and report results accurately and honestly are skills that carry students beyond their academic career. Academic dishonesty not only cheats the student of valuable learning experiences, but can result in a failing grade on assignments, a failing grade in a course, or even expulsion from the university for the student.

Lessons and Class Structure

The instructor prepares lessons that provide students with a conceptual-theoretical framework for the content of the course. Practical examples are discussed to assist student understanding and work toward developing mastery of a particular skill or concept. New material is introduced at a pace much faster than occurs in the usual classroom. Gifted students typically require this pace in order to remain challenged.

An example of class structure may include the instructor reviewing unresolved homework assignments, introducing new material, giving spot quizzes and longer tests, and assigning homework that takes into account both previously studied material and concepts just introduced. Homework assignments, taking the average student six to eight hours to complete, are collected at the beginning of each class. This homework is graded, commented on by the professor or an assistant, and returned to and discussed with the student before the end of that day’s class or the next class.

Experience suggests that some students begin a program expecting to be able to work through homework quickly, and they can become frustrated when they are unsure of what to do immediately. Such students need to learn perseverance with mental tasks. Other students tend to view any effort that is less than 100% correct as
WHAT TO EXPECT FROM YOUR GATE PROGRAM

a failure. As the course proceeds, these students develop a more mature perspective on learning. Homework helps to solidify concepts presented in class and to provide a realistic challenge, requiring these students to develop problem-solving skills and to persevere in the face of less-than-instant-success. Students may feel overwhelmed at first by the volume of the homework assigned, but most adjust to what is required.

**Commuter vs. Residential**

Comparison of Commuter and Residential Participation in GATE Summer Camps

<table>
<thead>
<tr>
<th></th>
<th>Residential (R)</th>
<th>Commuter (C)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic Classes</strong></td>
<td>Both R and C students participate in the day’s academic classes.</td>
<td></td>
</tr>
<tr>
<td><strong>Lunch</strong></td>
<td>Both R and C students are provided with lunch.</td>
<td></td>
</tr>
<tr>
<td><strong>Social Activities</strong></td>
<td>Both R and C students pay to stay overnight in the dorms, there are additional social activities planned for them in the evenings and on the weekend.</td>
<td>Commuter students do not participate in evening or weekend social activities. A select few of these activities may be made available to commuter students, and we will inform you of these optional activities.</td>
</tr>
<tr>
<td><strong>Camp Attendance</strong></td>
<td>R students are not allowed to leave for the duration of camp (unless an emergency arises). Students can communicate with their families via phone and e-mail in the evenings.</td>
<td>C students must be dropped off and picked up during designated times. Arriving late, leaving early, or missing days of class is not allowed.</td>
</tr>
</tbody>
</table>

### Summary of GATE Summer Programs

<table>
<thead>
<tr>
<th></th>
<th>Residential AVAILABLE</th>
<th>Commuter AVAILABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GUPPY</strong></td>
<td>No*</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Future DOcs</strong></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>MST: Math, Science, Technology</strong></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Dual Enrollment College Classes</strong></td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Families who live out of the area may stay at a local hotel. A parent must accompany their student.

### Commuter Camp FAQs

**When do I drop off and pick up my child, and where?**
- Times, locations, and detailed information about drop-off and pick-up policies will be provided to parents and guardians well in advance of the beginning of the program.
- We cannot accommodate alternate drop-off or pick-up times. It is important that we make sure that every student is accounted for and safe at all times.

**Can my child miss a day of class?**
- Since our programs are only one or two weeks in length, GATE emphasizes that students cannot skip any days of class. We do not want any of our students to fall behind or feel left out.
- Unacceptable reasons for missing camp: doctor’s appointments, family gatherings.
- Acceptable reasons for missing camp: an emergency that arises that warrants the student missing camp.

**Should my child bring a lunch or is lunch provided?**
- Commuter students will all be provided with a meal ticket each day to eat lunch at the cafeteria, along with the residential students. They do not need to bring a lunch.
- Students should bring a water bottle.
- They may also bring snacks.

### Residential Camp FAQs

**Can I visit my child or take my child home on the weekend?**
- GATE residential camps are closed programs, meaning that for the duration of camp there are no visits from home or trips home for the weekend.
• Camp is full of fun activities, even on the evenings and weekends! We do not want any students to feel excluded. For safety reasons, it is mandatory that students stay on campus for the duration of camp, unless an emergency arises.
• Students will be able to text, e-mail, and call their parents and guardians at designated times, usually during evening free time.

Will my child be safe on campus and staying in the dorms?
• Residential staff, also called on-site coordinators and resident advisors (RAs), are trained to keep each student safe. Before the opening of the program, the residential staff receives training on rules, regulations, and safety information related to the students’ welfare.
• The on-site coordinators are adults who are experienced at running summer programs. They are assisted by RAs who are current MSU students. RAs are selected because they have a commitment to education and because of their ability to interact well with young people.
• The residential staff members live in the residence hall with every student and are on duty 24 hours a day to ensure that every camper is safe. They are responsible for providing a comfortable and friendly atmosphere in the residence hall.
• Male and female students will live in separate hallways in the same residence hall.

Can my child request a specific roommate?
• No. Each student will be assigned a roommate. We want students to meet new people at camp!
• Assigning roommates is just one way of encouraging new friendships. Students will be placed in three different instructional groups, as well as a “color group” for some activities, allowing many opportunities to interact with a variety of different students in small groups. There is also free time in the evenings for students to socialize together.

Should I supply my child with extra money?
• Yes, we recommend that each student be given at least $20 in cash.
• Students may want to purchase souvenirs or vending machine snacks. Campers may visit the MSU Dairy Store and campus bookstore and choose to buy items.

What should my child bring?
• To help residential students plan for their stay in the residence halls, we will provide a complete packing list after the student has been accepted to the camp.
COSTS AND PAYMENT

For MST and Future DOcs, you must pay an application fee at the time of application in order for your student’s application to be reviewed.

For GUPPY and Academic Year programs, you do not pay any fees until the student is accepted into the program.

Academic Year Programs
(CHAMP/LCHAMP/CHAMP-Nov, ISHALL/ISHALL-Nov, and LEAF)

Reservation Fees
There is no fee due at the time of application; however, upon acceptance into a program each student pays an initial, non-refundable $100 reservation fee confirming his/her intent to participate. Returning Year 2 students must pay a non-refundable $50 reservation fee confirming their intent to continue participating in the program.

Tuition
The cost of program instruction per student per year is approximately $1,500 or $750 per semester, due before the beginning of each semester. The GATE office will send parents notice of when payment is due. Contact the GATE office if you require a payment plan.

Financial Aid
Tuition assistance from the GATE office may be available to those with financial need. Fill out the Financial Aid page of the application when you apply to a program. Parents should also contact their student’s school to learn if any financial support is provided by the school.

How to Pay
Payment can be made by credit card on the GATE website (gifted.msu.edu/payment) or by check made payable to Michigan State University. Please write your child’s name and program on the notes line of the check and remit payment to the GATE office. Please refer to the website for check submission instructions.

Other Costs
Parents are responsible for providing transportation, as well as class supplies such as notebooks, binders, etc. Some programs may organize optional field trips with attendance costs to be paid by the student.

ISHALL: Parents are responsible for purchasing textbooks for their students.

LEAF: Students pay a $100 technology fee.

ALL: Students pay a $100 technology fee. Parents are responsible for purchasing textbooks for their students.

CHAMP-Nov and ISHALL-Nov: Students pay a $100 distance learning fee. Parents are responsible for purchasing textbooks for their students.

Cancellation Policy
All classes are subject to a minimum enrollment of 15 students and may be canceled at the discretion of the GATE office.
Refunds and Drops
If a student drops from a GATE academic year program, the refund policy is:

- For drops occurring on or before the date of the 4th class session, one hundred percent (100%) of the tuition for the program dropped will be refunded.
- All requests for withdrawals and refunds must be submitted in writing to the Gifted and Talented Education office via e-mail (gifted@msu.edu) or by mail by the end of the business day of the 4th class session. We will then give you a drop form to be signed by your school.
- For drops occurring after the date of the 4th class session, no refund will be made for any programs dropped.
- Reservation fees are non-refundable.
- Refunds may take up to 4 weeks.

Summer Programs
(MST, Future DOcs, and GUPPY)

Application Fee
MST and Future DOcs programs require a $100 non-refundable application fee. Payment must be made in order for an application to be reviewed. Applications received after posted deadline dates must include a $20 late fee.

The GUPPY program does not have an application fee.

Tuition
MST Camp: $1,950 residential, $995 commuter (includes lunches). Extended day is available for commuter students for an additional cost. Financial aid is available.

Future DOcs: $1,500 residential, $750 commuter (includes lunches). Extended day is available for commuter students for an additional cost. Financial aid is available.

GUPPY: $250 (includes breakfast and lunch for 1 student and 1 parent; $10 each for additional family members to eat in the dining hall). Please see the other costs section for hotel information for out-of-town families.

Dual Enrollment: For information about dual enrollment and tuition assistance, please visit gifted.msu.edu/programs/dual-enrollment

Note that dual enrollment tuition is subject to change at the discretion of Michigan State University.

Tuition Payment Information
MST and Future DOcs: Once accepted into the program, each student must pay a $150 tuition deposit confirming his/her intent to participate. You will then be billed later for the remaining balance of tuition. Contact the GATE office if a payment plan is needed. However, please realize that tuition must be paid in full before the program start date.

GUPPY: Once accepted into the program, the student’s family will be notified of the payment due date.

Dual Enrollment: Once accepted, students will be billed by MSU. There may be an option for a payment plan indicated on the bill, depending on the student’s enrollment date.

How to Pay
Payment can be made by credit card on the GATE website (gifted.msu.edu/payment) or by check made payable to Michigan State University. Please write your child’s name and program on the notes line of the check and remit payment to the GATE office.

Please refer to GATE website for check submission instructions.

Other Costs
MST and Future DOcs: Parents are responsible for getting their students to and from camp. If students are flying into Lansing’s Capital Region International Airport, summer program staff will be able to pick up and transport them to MSU’s campus for dorm check-in. If you book your flight into Detroit Metropolitan Airport, we cannot pick up your child. If residential students need to arrive early to camp or leave later than scheduled, parents must notify GATE and the extra room and meal costs will be charged to the parents. Students should bring a small amount of personal spending money for souvenirs, vending machine snacks, etc. Extended day is available to commuter students for an additional cost. Financial aid is available.

GUPPY: For out of town families, GATE has arranged a local hotel, and reservation information will be distributed after the student is accepted into the program.

Estimated Hotel Costs:
- 1 queen bed + pull-out couch - $99/night plus taxes/fees
- 2 queen beds - $119/night plus taxes/fees
- 3 queen beds suite with 2 bathrooms - $149/night plus taxes/fees

Dual Enrollment: Students are responsible for purchasing the books assigned by the professor. Parents or students are responsible for transportation to and from class. If students are driving to class and parking on campus, they are responsible for obtaining and paying for a campus parking pass, or paying to park in metered lots. You will be sent additional information about parking after acceptance. If there are any optional field trips or activities planned by the professor, the cost is the responsibility of the student/parent.

Classes offered through Ingham ISD: Tuition varies by program. See individual course descriptions.
Cancellation Policy
All programs, or classes within a program, may be subject to a minimum enrollment of 15 students and may be canceled at the discretion of the GATE office. Additionally, the residential portion of the programs may be canceled if there are less than 10 students per program signed up to stay on campus.

Refunds and Withdrawals
The application fee of $100 is non-refundable.
All requests for withdrawals and refunds must be submitted in writing to the Gifted and Talented Education office via e-mail (gifted@msu.edu) or by mail at least 14 days before the program begins in order to receive a 100% refund of tuition paid.

If a student withdraws in writing within 14 days before the program start date, the refund will be 50% of program fees paid. Students who withdraw after the start of a program receive no refund.

Students dismissed for disciplinary reasons are not eligible for any refund.

Refunds may take up to 4 weeks.

Financial Aid
Tuition assistance from the GATE office may be available to those with financial need. Visit the GATE website for Financial Aid eligibility information and to download the application. Fill out the Financial Aid page of the application when you apply to a program. Financial Aid from the GATE office or MSU does not apply to Dual Enrollment.

Because financial aid availability is limited, families are limited to receiving one Summer scholarship and one Academic Year scholarship within a three year period. However, families may still apply for a Financial Aid scholarship again within this 3-year period, but will be funded again only if there are funds available at the end of the application acceptance period. This Financial Aid policy is subject to change.

Students who have been dismissed from or have failed any GATE program may not apply for financial aid for any future GATE programs.

THE

Dorothy

Lawshe

ENDOWMENT

for Gifted and Talented Education

In recognition of the impact Dorothy has had on the lives of Michigan children over the past several decades, her former students, colleagues, friends, and family created the Dorothy Lawshe Endowment for Gifted and Talented Education. The Endowment will help ensure that gifted and talented students continue to enjoy excellent, enhanced educational opportunities for years to come, and that high-ability students from disadvantaged backgrounds will have unimpeded access to those opportunities.

Please donate to help support GATE and gifted students in Michigan
Online donations can be made by visiting: givingto.msu.edu/gift/?sid=1320

FINANCIAL AID SCHOLARSHIPS ARE AVAILABLE
Need-based scholarships are available to students due to the generosity of our donors to The Dorothy Lawshe Endowment fund and our grantor The Thoman Foundation. Transportation is supported by The Lansing Area Community Trust Fund.
ACADEMIC YEAR PROGRAMS

Fall Semester 2017 – Spring Semester 2018

Our school year programs challenge gifted middle and high school students in math, literature, and language. Space is limited in academic year programs and the application process is competitive. Apply early!
CHAMP
Cooperative Highly Accelerated Mathematics Program
Fall Semester 2017 – Spring Semester 2018

CHAMP, in partnership with the Department of Mathematics and University Outreach and Engagement at Michigan State University, provides classroom instruction for qualified mathematically gifted students in grades 7-10.

**Important Dates for CHAMP Programs**

**Application Deadline:** May 3, 2017

**Program Begins (CHAMP)**
Thursday, August 31, 2017 (Tentative)
1:00 – 3:30 pm
MSU campus – Room TBD

**Program Begins (LCHAMP)**
Week of August 28, 2017 (Tentative)
Day and time TBD
Lapeer County Schools

CHAMP is designed so that the participating students will complete in two years the math content assigned in Michigan High School Content Expectations (HSCE) for all four years of high school and meet the Common Core National Standards. In their first year of CHAMP, students study Algebra I and Algebra II.

In the second year, CHAMP students study Geometry and a standard pre-calculus course (Trigonometry, Analytic Geometry, College Algebra, and a brief introduction to calculus concepts).

Normally, students begin CHAMP with the study of Algebra I. Initial placement that bypasses one or more CHAMP courses may be allowed only in very unusual circumstances.

<table>
<thead>
<tr>
<th>CHAMP Schedule:</th>
<th>Course:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1 (Fall, Year 1)</td>
<td>Algebra I</td>
</tr>
<tr>
<td>Semester 2 (Spring, Year 1)</td>
<td>Algebra I</td>
</tr>
<tr>
<td>Semester 3 (Fall, Year 2)</td>
<td>Geometry</td>
</tr>
<tr>
<td>Semester 4 (Spring, Year 2)</td>
<td>Pre-Calculus</td>
</tr>
</tbody>
</table>

For information about CHAMP program eligibility, see GATE Program Requirements and Responsibilities on page 5 of this catalog. For information about costs and payment, see Costs and Payment on page 10.
Instructional Plan
Students are dismissed early one afternoon each week from their respective school districts, and report to the Michigan State University campus (CHAMP) or Lapeer County Education Technology Center (LCHAMP) for their math classes. Each class lasts 2½ hours. Throughout the year, there are also regularly scheduled CHAMP labs outside of school hours for students needing assistance with their assignments or for those preferring to study cooperatively with other CHAMP students. Students will be given an MSU account for the online course website to access CHAMP coursework/homework assignments and a forum for asking questions.

Evaluations
Evaluation of the Program
Annual assessment of the program involves compilation and review of information gathered from university and local school personnel, parents, and students. Expectations in the Michigan high school and national core curricula have been incorporated into the CHAMP/ LCHAMP curriculum.

Evaluation of the Student
The most direct measure of the program’s success is the students’ demonstrated progress in mathematical content as evidenced by performance on nationally standardized examinations and tests devised by the instructors. Post-test mastery is defined as achievement at the 85th percentile and above on nationally standardized achievement tests recommended by Johns Hopkins University. Pre- and post-test results from CHAMP/ LCHAMP suggest that students were presented material not previously known to them, and that they were successful in mastering it.

Progress in mastering subject matter is monitored regularly through graded weekly homework assignments, quizzes, and teacher-constructed tests. Midterm reports and end-of-semester (December and May) written evaluations are sent to each student’s family and school district. These reports include details on progress in content, participation, and letter grades. Credit and grades are recorded on the student’s high school transcript. Student-teacher conferences are scheduled when needed, and student self-evaluation is strongly encouraged and developed.

Parent-teacher conferences are scheduled each semester to give parents an opportunity to communicate with the teacher about their child’s progress.

Program Goals
The mathematics content follows the traditional high-level, four-year high school curriculum: two years of algebra, plane/solid geometry, trigonometry, and analytic geometry. The students complete this content in two years and receive mathematics credit on their high school transcripts; a written evaluation documents mastery and assigns a grade for each course. Compressing learning into a shorter time frame in just one subject could make two or more years available in high school for other desired courses, e.g., a foreign language or college mathematics courses.

Most students completing CHAMP should be prepared to enroll in an honors high school calculus course, an advanced placement (AP) high school calculus course, or an honors level college calculus course.

Dual Enrollment Option
An opportunity for postsecondary enrollment, also referred to as dual enrollment, is available to eligible 9th-12th grade students. The Postsecondary Enrollment Options Act (PSEO) permits students to take classes in both high school and college/university simultaneously. The purpose of PSEO is to provide a wider variety of options to high school students to ensure that all students continue to be challenged.

Michigan State University Gifted and Talented Education provides dual enrollment to admit qualified high school students to college courses while enrolled in their high schools. Specific post-CHAMP dual enrollment courses are listed on our website: gifted.msu.edu/dual-enrollment

LCHAMP
Fall Semester 2017 – Spring Semester 2018
The Lapeer Cooperative Highly Accelerated Mathematics Program (LCHAMP), a derivative of CHAMP and a consortium of Lapeer ISD in partnership with the Department of Mathematics and University Outreach and Engagement at Michigan State University, provides classroom instruction at Lapeer Community Schools for qualified mathematically gifted students in grades 7-10 in Lapeer County in eastern Michigan.
ISHALL
Intensive Studies in Humanities, Arts, Language, and Literature
Fall Semester 2017 – Spring Semester 2018

ISHALL, in partnership with the Department of English, the Department of Writing, Rhetoric, and American Cultures, and University Outreach and Engagement at Michigan State University, provides classroom instruction for qualified language arts students in grades 7-10.

Important Dates for ISHALL

Application Deadline: May 3, 2017

Program Begins
Tuesday, August 29, or Wednesday, August 30, 2017 (Tentative)
7:45 am – 10:00 am
MSU campus – Room TBD

Note: Your student will be assigned to attend either a Tuesday class OR a Wednesday class. Students attend only one class per week.

For information about ISHALL program eligibility, see GATE Program Requirements and Responsibilities on page 5 of this catalog. For information about costs and payment, see Costs and Payment on page 10.

Because students are studying typical high school literature content, ISHALL curriculum may contain mature content that is not appropriate for all students. Parents need to review the sample curriculum and determine if their student is ready for the ISHALL curriculum.

ISHALL is designed so that the participating students will complete in two years the English content assigned in Michigan High School Content Expectations (HSCE) for all four years of high school as well as meet the Common Core National Standards.

Students study a wide range of texts and media in literature and the humanities including novels, biographies, plays, poetry, and film. Students are also exposed to a variety of different historical movements and types of literature, such as romanticism, enlightenment, Shakespearean drama, and comedy, in addition to modern works.

Program Features
The ISHALL program is taught by an MSU professor in the English department or the Writing, Rhetoric, and American Cultures department. ISHALL is open only to eligible students who have demonstrated high skill in reading, writing, and other skills associated with language arts, and who have the commitment to
pursue language arts in an intensive accelerated course while maintaining satisfactory performance in non-English middle school/high school courses.

In addition to weekly classes, a regular study session is scheduled on Sunday afternoons, where an MSU student assistant provides students with an opportunity to work through the writing process and receive help on both current and previous course material. Attendance at this session is optional, but strongly encouraged for students who feel the need for feedback in addition to that received in class.

Classes are small, optimally sized for fostering discussion while permitting the kind of individual attention often necessary for working through issues of expression.

All ISHALL students should have a computer capable of running word processing programs compatible with MS Word. Students should also have access to a printer and an Internet connection so they can have access to the ISHALL course management website, online features of textbooks, and the MSU library resources.

ISHALL emphasizes the wealth and variety of expressive possibilities as well as modes of critical engagement.

Credit and grades are recorded on the student’s high school transcript.

Note: Parents are responsible for purchasing all books assigned in the ISHALL curriculum. A final book list will be provided before the program begins.
LEAF
Langue pour Étudiants Avancés de Français
Fall Semester 2017 – Spring Semester 2018

LEAF, in partnership with the Department of Romance and Classical Languages and University Outreach and Engagement at Michigan State University, provides classroom instruction for students in grades 7-10 who have advanced skills in language arts/French.

Important Dates for LEAF

Application Deadline: May 3, 2017

LEAF Diagnostic Testing
By appointment only
Available for students with prior French language experience who may be able to place into a higher level of LEAF.

Program Begins

Thursday, August 31, 2017 (Tentative)
4:15 – 6:30 pm

Hybrid Class
Face-to-face class on the third Thursday of each month. All other Thursday classes held via live online video (Zoom). Room – TBA

Online Lab Sessions
Sundays, 1:00 – 3:00 pm (Tentative)

LEAF is designed so that participating students can complete in two years the French language content assigned by Michigan High School Content Expectations (HSCE) for all four years of high school as well as meet the Common Core National Standards. Every semester of LEAF corresponds to 1 year of high school French. Below are the equivalents:

<table>
<thead>
<tr>
<th>LEAF offerings:</th>
<th>High school offerings:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1 (Fall, Year 1)</td>
<td>French 1</td>
</tr>
<tr>
<td>Semester 2 (Spring, Year 1)</td>
<td>French 2</td>
</tr>
<tr>
<td>Semester 3 (Fall, Year 2)</td>
<td>French 3</td>
</tr>
<tr>
<td>Semester 4 (Spring, Year 2)</td>
<td>French 4 and AP French</td>
</tr>
</tbody>
</table>

Every semester of the program emphasizes developing and refining the four skills: reading, writing, speaking, and listening. In addition, various in-class and out-of-class opportunities will be provided, especially in Semesters 3 and 4, in preparation for the AP French exam.

For information about LEAF program eligibility, see GATE Program Requirements and Responsibilities on page 5 of this catalog. For information about costs and payment, see Costs and Payment on page 10.
Program Features

LEAF offers a new technology-enhanced format. Local students will attend class on the MSU campus and long distance students will be video connected online simultaneously. Local and long distance students attend class via live video broadcast each week on Thursdays from 4:15 to 6:30 pm. On the third Thursday of every month, all students will be required to attend class in-person on MSU’s campus from 4:15 to 6:30 pm. Families are responsible for transportation to the campus. Instructions for logging in and using the technology will be provided to all students. The LEAF program will make use of video conferencing technology to connect with students. This will enable students to participate actively in real time and also improve their speaking and listening comprehension.

Throughout the year, there are also regularly scheduled “virtual” LEAF labs on Sunday afternoons for students needing assistance with their assignments. A TA (teaching assistant) will be available to connect with students via live video conferencing. The TA is an MSU student who is majoring in French. Students will be given an MSU account for the LEAF course website to access coursework, homework assignments, and online reference materials.

The LEAF curriculum is based on the Communicative Language Teaching Methodology. The underlying principle of this method is to encourage language learning through the use of active exposure and communication in the target language and culture in the classroom. The components of grammar and vocabulary will be introduced through a variety of input activities that focus on students’ inductive reasoning abilities. The first semester activities will include visual support (pictures, video, realia, etc.). As students progress in language acquisition, activities will make more use of vocabulary and structures covered in class. Students will also focus on writing and composition skills and be exposed to literary readings in French. Classroom time ranges between input presentations, reinforcement of concepts, group work assignments, and open-ended tasks with time for individual attention and student feedback. Homework includes written and online assignments, as well as recording oral exercises.

Instructional Plan

Our French classes are optimally sized for fostering discussion while permitting the kind of individual attention often necessary for working through issues of expression. A minimum of ten students is required for the course to run.

All LEAF students should have a computer capable of running word processing programs compatible with MS Word and PDF, a microphone, and a webcam. Students should also have access to a high speed Internet connection so they can connect to the LEAF course management website (D2L), and our online book platform called VHLCentral SUPERSITE 3.0. Through the SUPERSITE, students will complete all homework exercises as well as have access to study materials. The computer-enhanced portion of the course will provide the following advantages to students:

Self-pacing

Students can take the time they need to do the on-line portion of the course as long as they complete the assignments before the deadlines.

Preparedness

Learning a language successfully requires consistent work and effort (not last minute cramming before an exam). Having to complete assignments in the VHLCentral SUPERSITE 3.0 on a regular basis will help students to keep up with the course material, come to class better prepared, and improve their chances of success in learning French.

Immediate feedback

VHLCentral SUPERSITE 3.0 grades homework exercises instantly and tells students which items are wrong.

Easy access

Students can do their homework from any computer with Internet access.

Credit and grades are recorded on the student’s high school transcript.
NEW PROGRAM!

ALL
Amo Linguam Latinam (I Love Latin!)
Fall Semester 2017 – Spring Semester 2018

ALL provides classroom instruction for students in grades 7-10 who have advanced skills in language arts.

Important Dates for ALL
Application Deadline: May 3, 2017

Program Begins
Tuesday, August 29, 2017 (Tentative)
4:00 – 6:00 pm

Hybrid Class
Face-to-face class on the first Tuesday of each month. All other Tuesday classes held via live online video (Zoom). Room – TBA

For information about ALL program eligibility, see GATE Program Requirements and Responsibilities on page 5 of this catalog. For information about costs and payment, see Costs and Payment on page 10.

ALL is designed so that the participating students can complete in two years the Latin language content assigned in Michigan High School Content Expectations (HSCE) for all four years of high school as well as meet the Common Core National Standards. Every semester of the GATE Latin program corresponds to one year of high school Latin. Below are the equivalents:

**LEAF offerings:** | **High school offerings:**
--- | ---
Semester 1 (Fall, Year 1) | Latin 1
Semester 2 (Spring, Year 1) | Latin 2
Semester 3 (Fall, Year 2) | Latin 3
Semester 4 (Spring, Year 2) | Latin 4 and AP Latin

The program emphasizes developing and refining two skills: reading and writing. Although Latin is no longer a spoken language, the course also draws upon speaking and listening skills to aid student comprehension. Discussions of language are anchored in topics of Roman and medieval culture, as well as in conversations about linguistics and the role of Latin in shaping English as a language. Students will take the National Latin Exam at the end of each year, and may elect to take AP Latin exam at the end of their second year.
The GATE Latin Program offers a technology-enhanced format. Students will attend class via live video broadcast or in person each week and a significant portion of the material will also be available on the course website for asynchronous learning. Once or twice a month, all students will be required to attend class in person on MSU’s campus. Throughout the year, students will be able to seek additional assistance via regularly scheduled “virtual” labs on Sundays. Either the course instructor or a TA (teaching assistant) will be available to connect with students via live video conferencing.

**Student Advantages**

- The accelerated program allows students to complete the traditional four-year high school Latin program in two years.
- The time freed by the program gives students more options, including honors/AP/IB classes or dual enrollment in college courses.
- Students have the opportunity to work with university professors in a small class setting.

**Class Content and Procedures**

The instructor will prepare class activities that provide students with a conceptual and theoretical framework for the mastery of the goal areas for classical language learning: communication, culture, connections, comparisons, and communities. The GATE Latin program curriculum is based on the communicative language teaching methodology. The underlying principle of this method is to encourage language learning through the use of active exposure and communication in the target language.

Starting from the first semester, students will be exposed to the target language and culture in the classroom and online. Such components as grammar and vocabulary will be introduced through a variety of input activities which focus on students’ inductive reasoning abilities. For first-semester students, the input activities will be accompanied by visual support. As students progress with their language acquisition, the input activities will make more use of vocabulary and structures covered in class. Class time includes input presentations, reinforcement of the concepts, group work assignments and open-ended tasks with individual attention and student feedback. Group work assignments and open-ended tasks include reading, writing, listening, and speaking activities with frequent practice in the recognition of word roots.

Homework assignments fall under two main categories: immediate application of the concepts covered in class and application of concepts to carry out more open-ended and communicative tasks. The immediate-application homework assignments serve as practice to reinforce the Latin grammar, morphology, and vocabulary covered in class. Students are required to turn in these assignments regularly to receive feedback about their understanding of the material covered. Once students display a strong understanding of the material, they also work on the more open-ended homework assignments, which consist of practical and creative application of the concepts. Students complete homework both online and on paper.

Students’ writing skills are taught using a variety of tools depending on proficiency level. Students will write in Latin regularly, though the length and complexity of their writing will increase in correlation with their proficiency. This composition follows a process-oriented approach where students are guided in different writing stages like planning, drafting, and editing. As students are exposed to more literary readings in Latin, the writing assignments will incorporate some of the ideas covered in the reading and may request that students emulate the style of the reading. The synergy of these kinds of activities makes students more sensitive readers and more effective writers, both in Latin and in English. This also helps students understand the richness of meaning and expression in Latin literature and incorporate rhetorical and literary concepts in their own writing.

**Instructional Plan**

Our Latin classes are optimally sized for fostering discussion while permitting the kind of individual attention often necessary for working through issues of expression. Ideally, 10–20 students would fill a section of the course.

All GATE Latin program students require a computer capable of running word processing programs compatible with MS Word and PDF, a microphone, and a webcam. Students also need access to a high speed Internet connection so they can connect to their MSU account, the GATE Latin course management website (D2L), and any other online materials used. Students will complete homework exercises and access to study materials via D2L and Eli Review. The computer enhanced portion of the course provides the following advantages to students:

**Self-pacing**

Students can take the time they need to do the on-line portion of the course as long as they complete the assignments before the deadlines.

**Preparedness**

Learning a language successfully requires consistent work and effort (not last minute cramming before an exam). Having to keep up with the course material, come to class better prepared, and improve their chances of success in learning Latin.

**Immediate feedback**

Students can receive grades immediately on some homework exercises and can also be actively engaged in providing each other feedback and language interaction.

**Easy access**

Students can do their homework from any computer with Internet access.
SUMMER PROGRAMS
Summer 2017

GATE summer programs are designed to help students take advantage of the warm summer months in fun, constructive ways. Summer program applications are reviewed on a rolling basis and classes fill up quickly. Apply early!
CSI
Crime Scene Investigation Forensics Camp
Grades 7-9

The CSI Forensic Science Camp at Michigan State University is a one-week commuter or residential program. The curriculum is intended for academically able students who are currently in grades 7, 8, or 9 and at least 12 years old. All students will work in a university setting with forensic science professionals.

CSI FORENSIC SCIENCE CAMP IS ON HIATUS FOR 2017
Instead, check out the MST@MSU Program, which will offer a CSI class as an option.

Forensic science is the application of science for the purposes of law. Through a variety of educational presentations and hands-on experiences, students will learn how their acquired scientific knowledge can be applied to criminal investigation. Throughout the week, students will have the opportunity to apply their creativity and investigative skills as crime scene investigators working with real equipment on a variety of mock crime scenes.

CSI Curriculum
This Crime Scene Investigation (CSI) camp will teach students about the science and techniques used in the investigation of crimes. The camp is designed to challenge students and provide them with the real world experience of a forensic scientist. The instructors of the CSI camp are experts in the field and will provide students with a general overview of many of the fields of forensic science as well as practical hands-on experiences. Students will hone their observation, creativity, and intellectual skills, while also enjoying an exciting and adventurous week, working side-by-side with forensic experts.

Participants will be introduced to the knowledge and skills required to process crime scenes, while learning how science is used to analyze evidence in crime labs.
The Mathematics-Science-Technology (MST) program at Michigan State University is a two-week summer commuter or residential program for academically talented students who are currently in grades 7, 8, or 9 during the 2016-2017 school year, with a minimum age of 12 years old.

### Important Dates for MST

- **Application Deadline:** May 3, 2017

### Class Schedule

**July 9, 2017**
- 1:00 - 2:30 pm Check-in at residential hall
- 3:00 - 4:00 pm Orientation for parents and students (including commuter)

**July 10 - 14 and 17 - 21, 2017**
- Classes held Monday – Friday, 9 am – 5 pm
- Extended day is available for commuter students at an additional cost. Financial assistance is available.

**July 22, 2017**
- 8:30 - 9:30 am Breakfast and check out (residential students)
- 10:00 am - 12:00 pm Closing Ceremony (all students)

For information about MST program eligibility, see GATE Program Requirements and Responsibilities on page 5 of this catalog. For information about costs and payment, see Costs and Payment on page 10.

### What your Tuition Payment Covers

- Instruction in two intensive content-area classes in math, science, engineering, or technology
- Instruction in one of the workshops
- Instructional materials
- Class activities or field trip(s)
- Notebook with course content
- GATE T-shirt
- For commuter students, lunch is provided Monday – Friday.
- For residential students, all meals are provided for the duration of camp. Residential tuition also covers the cost of housing, 24/7 supervision, and evening activities.
Microbiology: Mining the Seeds of Technology

Did you know that microbes can help reduce the cost of your next cell phone, tablet or computer?

An essential component of the speakers and batteries within your technological gadgets are critical metals known as REEs (Rare Earth Elements). These elements are difficult to obtain as they are very insoluble and scarce in pure form. Mines all over the world have shut down due to the dangers and costs of the extensive purification process, as well as harmful consequences to the environment such as leaching of radioactive byproducts. Today, the United States is forced to rely on foreign markets for REEs, and 96% of the mining and distribution of these metals comes from China.

Surprisingly, there are microbes known as methylotrophs that use these metals to grow, which means that these microorganisms are expert bio-miners with the capability to solubilize and extract rare earths from different sources, both at high and low concentrations. A strain of methylotropic bacteria that can recover rare earths from electronic waste (recycled technological devices) has been engineered. During this workshop every student will recover rare earths from recycled batteries and speakers.

Hands-on experiences will include:
- Genome editing: Learn how to modify the genome of the bacteria to optimize production of the rare earth solubilization and transport systems.
- Microbial engineering: Learn how to grow the engineered bacteria on the speakers or batteries and how to recover and purify these metals from a bacterial culture. Concepts like yields and growth rate will be monitored, just like in the biotech companies.
- Protein modeling: During the experimental stages of the workshop students will also learn how to model proteins and screen for proteins that can add selectivity and efficiency to the process.

Entrepreneurial Math: The Business of Numbers

Do you have what it takes to be the next Mark Zuckerberg? Solid business plans all have one thing in common—money. With the growing accessibility of tools for branding and business creation, this class aims to provide a basic understanding of the math that students may need to run their own business using applied orientation to concepts and problem-solving techniques seen in real-world economics.

Goals of the class include informing our future leaders about the mathematics skills they will need in order to run their own business or to pursue a career in business; studying concepts in order to make connections between mathematics and the business world; ensuring mathematical topics covered in class are applicable to practical problems found in business and economics; and introducing mathematical problem-solving methods and strategies in all applied business and economics examples.

Hands-on experiences will include:
- Evaluating an applied function in business
- Functions used in business and economics: demand function, supply function, and revenue; the cost and profit functions; the average cost function
- Studying a production process
- Composite functions used in cost and revenue
- Production cost, profitability, distribution cost, data transfer, stock prices, worker efficiency, and consumer demand
- Graphs of functions used in production; finding maximum revenue
- Manufacturing cost/output, retail sales, consumer expenditure
- Writing a linear cost function and linear price function; least-squares linear approximation of data
- Credit card debt, linear depreciation, and linear appreciation of assets

Competitive Math: Turning Life’s Negatives into Positives

The goal of competitive mathematics is to harness the enthusiasm and drive that students have in mathematics in order to allow them the chance to expand their mind and challenge themselves in a friendly, informal, but competitive atmosphere.

The Competitive Math course will help students to develop strategies for solving common math problems typically found in local, regional, and national contests. Additionally, students will learn to appreciate the art of mathematical problem-solving while strengthening their ability to employ problem-solving strategies. Students will be challenged with exposure to mathematical concepts that they might not encounter in the public schools. This course aims to foster enjoyment in mental math and other intellectual activities.

Hands-on experiences will include:
- General and advanced mathematical problem-solving strategies
- Logic, number, probability, and counting theories
- Sequences, series, and patterns
- Proportional reasoning
- Algebraic expressions and equations
- Plane, solid, and coordinate geometry
- Statistics, measurements, percentages, and fractions
**Game Design 101:**
**Principles of Play**

What do exploring a haunted house, eradicating a disease, and building railroad lines have in common? They’re all experiences you can have playing games. You play them, you love them, but who creates these experiences? And how do they create games that people will enjoy playing?

This course will explore the cutting-edge field of experience architecture (XA). XA focuses on designing experiences—particularly digital ones, pulling from the practical and concrete aspects of computer science. XA practitioners focus on the ways people use products. They’re interested in design, image, rhetoric, and experience. The class will explicitly discuss the overlap between computer science, design, and rhetoric. We will talk about how the research and prototyping we do mimics the moves that experience architects do with (mostly) digital products.

**Hands-on experiences will include:**
- Using cloud technology common to experience architects to research our target audience and the gaming industry
- Exposure to Adobe Creative Suite products such as Illustrator, Photoshop, and InDesign
- Discussions about how products we enjoy—like board games—are created
- Working in groups to design a game using Adobe Creative suites and prototyping it using handmade models and a 3D printer
- Students will end the camp by play-testing their prototype, before taking their game prototype home.

**Forensic Science:**
**What You Don’t See on TV**

Have you ever wondered how science can be used to solve crimes? Forensic science includes much more than is depicted on your favorite shows like NCIS or CSI. The application of science aids in legal matters and ensures that justice is served.

There are several sub-disciplines within forensic science, including anthropology, biology, chemistry, entomology, and pathology. Throughout this course, you’ll be introduced to a number of these different areas, getting an overview of the sub-disciplines as well as hands-on experience in the laboratory. Students will learn how to process crime scenes and collect and analyze the evidence in a laboratory setting. Toward the end of the course, you’ll put all that you’ve learned to good use, analyzing a mock crime scene to identify the suspect.

**Hands-on experiences will include:**
- Documenting crime scenes and collecting evidence for analysis
- Processing and analyzing various types of evidence, including bones, controlled substances, latent fingerprints, and trace evidence
- Fully processing a mock crime scene, analyzing the evidence, and identifying a suspect
- Testifying in a moot-court as an expert witness
- Discovering how all the forensic science sub-disciplines collaborate to ultimately solve crimes
- Learning about the educational requirements for a career in forensic science

**Animation:**
**A Digital Artistry Experience**

Have you dreamed of creating your own animated worlds, characters, creatures, and stories like the ones in blockbuster animated films such as Monsters Inc., Kung Fu Panda, and Frozen? Since its conception, animation has always been a place where anything you imagine can happen.

Animation was born when people such as Eadweard Muybridge and J. Stuart Blackton used cutting-edge technology to imitate motion with photographs and drawings. Now, over 100 years later, there is little resemblance between those experiments and modern films. However, technology remains indispensable. Some of the most advanced computer systems in the world are dedicated to bringing fantastical worlds, creatures, and characters to life.

In this drawing and animation class, students will learn about the concepts and techniques used in professional animation studios around the world. They will use the same tools as the pros to bring their ideas to life through drawing, digital sculpting, modeling, lighting, rigging, animation, and more.

Successful collaboration and communication is key to large animation productions. So, students will pitch ideas, designs, and stories, as well as learn how to give and receive creative critique. Additionally, students will have the option to collaborate with one another to create projects.

At the end of the class students will have a broad understanding of a modern 3D animation pipeline and will have produced an animation or digital composition.

**Hands-on experiences will include:**
- Observing, drawing, and communicating using perspective, composition, light, shape, and texture
- Sketching and/or storyboarding ideas
- Using 3D sculpting for organic modeling
- Using hard-surface modeling for geometric shapes
- Lighting, shading, and texturing 3D models
- Learning basic rigging for 3D characters and creatures
- Observing motion and weight, and translating those observations to animation
- Using key frames and curves for animation
Chemistry: Exploring Our Atomic World

Chemistry is everywhere in the world around you—in the food you eat, the clothes you wear, the water you drink, medicines, air, household cleaners, you name it! Chemistry is sometimes called the “central science” because it connects other sciences to each other, such as biology, physics, geology, and environmental science. Chemistry is the branch of science where we study the properties of matter and its changes. It helps us to understand why propane burns, how glow sticks work, and what materials can be used make a battery. Doctors, engineers, forensic scientists, and researchers use chemistry to help us live longer, develop new and better materials, solve crimes, and find cures for diseases.

In this course students will learn both introductory and advanced chemistry concepts. Students will participate in laboratory activities designed to show the many applications of chemistry. The course includes unique, exciting, colorful, and explosive demonstrations of the interactions between different substances.

Hands-on experiences will include:

- Harnessing electrolysis to chemically separate water into hydrogen gas and oxygen gas
- Using the colligative properties of solutions to make homemade ice cream
- Determining the pH of an unknown acidic solution
- Building a working wet cell battery
- Using liquid nitrogen to flash freeze “Dippin’ Dots”

New for 2017:

- Using paper chromatography to determine the types of dyes contained within food products
- Determining the molar mass of butane (lighter fluid)
- Experimenting with thermodynamics to determine the energy content of food products

Physics: Rockets, Radios, and Radiation, Oh My!

The magic within science can all be understood with physics.

Our everyday experiences include a bewildering number of gadgets and natural phenomena. Physics provides us with a clear and fascinating understanding of many of these phenomena, while in some cases raising intriguing questions about still mysterious facets of nature.

In this course, students will study four areas of physics: mechanics (force and torque), electricity (voltage and current), waves (sound and light), and nuclear physics. Students will also have the opportunity to observe and participate in numerous mind-boggling demonstrations from the extensive stock of lecture demos used in MSU physics classes. In the lab portion of the class, students will use some of the same high-tech equipment that MSU undergraduate students use to conduct a variety of experiments.

Hands-on experiences will include:

- Using math and a computer application to determine the gravitational acceleration of a falling object
- Comparing the moment of inertias of spinning objects
- Investigating the relationship between voltage and current in electric circuits that include light emitting diodes
- Studying interference patterns created by a vibrating string
- Measuring the wavelength of laser light (an extremely small length!) and using interference patterns from a laser hitting a strand of hair to determine the diameter of the hair
- Investigating various radioactive sources and determine factors that affect the amount of radiation that is detected
- Designing and conducting experiments using MSU physics lab equipment

New for 2017:

- Exploring a mysterious spinning tube and a sinking diver
- Building a simple motor
- Building an LED-based battery tester

Nuclear Astrophysics: Shooting for the Stars

What do the history of the universe, the life and death of stars, and the elements that make up your body have in common? Nuclear astrophysics! Nuclear reactions such as fusion, fragmentation, and radioactive decay have guided the chemical evolution of the universe and the energy cycle in stars.

This course, sponsored by the Joint Institute for Nuclear Astrophysics and MSU’s world-class National Superconducting Cyclotron Laboratory (NSCL), will introduce you to the world of nuclei in deep space. Course topics will include an introduction to nuclear concepts with a marble-based model, nucleosynthesis (the construction of new elements), the mysterious origins of cosmic rays, and careers in research science.

Hands-on experiences will include:

- A tour of NSCL’s rare isotope research areas
- The interaction of light and matter; spectral analysis
- Classification of stars and stellar evolution
- Particle detection experiment

New for 2017:

- Physical simulations and theoretical calculations of neutron capture processes
- Analysis of radioactive sources with scintillators
Engineering 101

Engineering is the art of using math, science, and imagination to solve problems, invent, and improve things. Engineers figure out new ways to design, create, or improve almost everything around us. They work in teams to design computer games, robots, cars, roads, medical implants, satellites, and much more. The cell phones, laptops, tablets, and other electronic devices we use every day were originally engineered from raw plastic, metal, silicon, and lines of software code before being transformed into a usable device.

You might have already acted as an engineer before without even knowing it. If you like math, science, solving problems, thinking creatively, or are curious about the world around you and how things work, you are already on your way to becoming an engineer. The current top six fields of engineering are petroleum, electrical, computer, aerospace, chemical, and material. A solid foundation and a head start in this competitive field will prove to be beneficial to students' long term engineering goals. Additionally, engineering is a large aspect of many other jobs; the skill sets that students learn will prove to be desirable to potential schools and employers for years to come.

The core of engineering will be explored in this section with a strong focus on hands-on projects, design, and fabrication of machines and structures. Learn about the design process, CAD (computer-aided design), 3D printing, lathes, drills, and mills. This class will focus on mechanical, aerospace, and civil engineering.

New for 2017:

- Testing and building vehicles to wage war in a trebuchet battle competition
- Designing and building whirligigs and gliders
- Developing an alternative energy drag racer

Mechatronics

Unlike Engineering 101, which explores several different aspects of engineering, our mechatronics class will focus on a blend of mechanical engineering (the design, construction, and use of machines), electrical engineering (the technology of electricity), computer control, and information technology.

Mechatronics is a design process to create more functional and adaptable products such as combustion engines for spacecrafts, power systems, and artificial limbs. Modern inventions include electric cars and wind turbines. These are the same processes that led the Wright brothers to the airplane and Henry Ford to the assembly line. A mechatronics engineer unites the principles of mechanics, electronics, and computing to generate a simpler, more economical and reliable system. The term “mechatronics” was coined by Tetsuro Mori, the senior engineer of the Japanese company Yaskawa in 1969. An industrial robot is a prime example of a mechatronics system; it includes aspects of electronics, mechanics, and computing to do its day-to-day jobs.

If you like gadgets, creating your own inventions, and being challenged, then this class is for you. Students will learn about microcontrollers, resistors, capacitors, LEDs, switches, servos, PIR, and more. The three main focuses of this class will be hardware and circuits, computer programming, and fun.

New for 2017:

- Building a robotic mouse to autonomously crawl through a maze
- A Sumo robotic competition
- Smart car drag racing

Physiology and Neuroscience: Physiological Phenomena

Have you ever wondered how the human body really works? If so, then you’re already thinking like a physiologist!

At the basic level, physiology helps us understand how living creatures do all the things they do: eat, run, jump, breathe, and keep their hearts beating. A more advanced understanding of physiology helps us lengthen our life span, push the limits of athletic performance, cure disease, and discover new medications.

Classes will be held in the departmental physiology laboratory, using the same equipment and performing the same experiments as college undergraduate students.

The class will be a “hands-on” and “minds-on” experience, where you will learn whole-body anatomy, physiology, and neuroscience. We will also integrate body systems to see how all the different systems in your body work together. In order to achieve this, you will act as a scientist for two weeks, performing exciting experiments on yourself and with animal tissue in the lab, and using computers to collect and analyze data.

You will have the opportunity to measure your own body function including heart, brain, lung, and others. We will also talk about how the body of an astronaut responds to space flight and other fun challenges to the human body.

Finally, you will have the opportunity to meet professors and college students in physiology and neuroscience, as well as hear about some of the current research in the field.
Hands-on experiences will include:
- Measuring lung function of yourself and others
- Recording your own EEG and EKG
- Using electric shocks to stimulate both your own nerves and nerves in cockroach legs
- Exploring your sensory physiology: vision, hearing, taste, and reflexes

MST WORKSHOP OFFERINGS

Debate 101
While most people's familiarity with debate stems from political debates, such as those televised during presidential and local elections, much of what makes debate valuable is hidden from viewers. The real work within a debate includes researching issues, figuring out what functions as evidence, and developing coherent ideas.

Debate, regardless of how it is presented, ultimately relies on the same sort of dialectical reasoning that involves a clash of ideas merged with presentation skills. A 2015 study that analyzed more than 25 million job postings from 40,000+ sources indicated communication skills were the most desired baseline skill across all industries.

This workshop is designed for students who wish to gain debate skills related to public speaking, critical thinking, and logical communication. Students will develop skills fundamental to understanding argumentation, debate, and public speaking. These skills have been demonstrated to promote and improve academic, occupational, and civic achievement, as evidenced by a study in 2000 which indicated that debaters scored high on ACT and SAT exams.

Workshop activities will focus on gaining proficiencies that can prepare students for high school debate, including case development, argument strategies, research skills, critical thinking, public speaking, and basic argumentation and debate theory.

Anime and Manga: The Heart of Pop Culture
Anime is, in fact, an abbreviated pronunciation of “Animation” or “Japanimation,” which gained popularity in the 1980s. It began in 1917 with Japanese artists Shimokawa Oten, Jun'ichi Kouchi, and Seitaro Kitayama. According to Anime Amino, anime is considered to be an art form by those who appreciate it. A wide range of audiences is targeted with complicated, in depth, and emotional storylines. Did you know that all Manga is drawn by hand? And that in Japanese, Manga means “whimsical pictures”?

The goal of the workshop is to come together as a group to celebrate collective interest in anime as well as a space where anyone can be free to be themselves and make friends. Our workshop instructor has a vast education abroad and hands-on experiences within Japanese culture that he hopes to share with interested students.

Hands-on experiences will include:
- Viewing anime and anime music videos from a variety of genres
- Discussing anime and Japanese pop culture
- Enjoying Japanese food
- Reading/creating manga
- Karaoke
- Cosplay

Yoga: A Yogical Approach
Yoga is much more than downward facing dog and child’s pose. It’s an ancient form dating back over 5,000 years that consists of physical, mental, and spiritual practices or disciplines which originated in ancient India. It was developed in Northern India and was originally a collection of songs, mantras, and rituals to be used by priests. It was refined by the Brahmans and Rishis (mystic seers), who moved the practices from an external focus to an internal focus, teaching that individuality was secondary to harmony with others and with the environment. This work of putting others before self is realized through self-knowledge, action, and wisdom.

The workshop will explore some of this ancient history as well as the physical-spiritual connections which comprise today’s styles. Most participants begin yoga to learn the physical aspect of the practice, then find that the mind in connection with the body can do so much more. Our daily workshop will include both physical practice and discussion on the eight limbs of yogic living and how they can relate to stress management, productivity, career, and life lived synchronized with self. The workshop will also teach basic Sanskrit names of the poses, many of which are named after animals.

Lastly, participants are encouraged to bring comfortable clothing that allows for flexibility and free movement. Students of all skill levels are welcome; no previous knowledge of yoga practice is necessary.
Writing:
From Hogwarts, to Hobbits, to Hercules

What does Hogwarts have in common with spaceships? What does a zombie apocalypse have to do with doppelgangers or forensic science? What makes mystery mysterious? These stories are fun to read, watch, and write, but how do writers make the stories feel real? How can you use your interest in science or technology to produce realistic characters and compelling stories? Once you have a story, how do you get it published?

This workshop explores storytelling, creative writing, and publishing. In this space, we’ll create, share, and perform the stories that we imagine, using characters and worlds that we build and create to bring our ideas to life.

We will look for inspiration in science and technology to create something new and exciting in the arts. From there, we’ll learn a bit about book design, layout, and publishing, as we work to make and print a book of those stories for each student to share with his or her family and friends.

Hands-on experiences will include:
- Mapping out richly imagined worlds and universes, and designing heroes and monsters to fill them
- Writing and workshopping flash fiction and short stories
- Visiting the MSU Library’s Espresso Book Machine, where students will see their story collection printed

GIS:
The Power of Mapping

Geographic information systems (GIS) are spatial data bases used for map making and data analysis. An understanding of geographic information systems is quickly becoming critical to many professional fields including journalism, humanities, urban planning, and scientific research. Participants in this course will learn how to use GIS software for data analysis and web mapping as well as getting a conceptual understanding of the challenges and math involved in mapping and spatial data. This class will have a mix of computer learning activities and outdoor activities.

Hands-on experiences will include:
- Gain an understanding of GIS and mapping, including knowledge about file types, data formats, projections, and database structure
- Use GIS software (QGIS and ArcOnline)
- Make maps on the web
- Take aerial photos and learn how to use them in a GIS
- Collect data in the field
- Understand general principles of map and data literacy

Visual Art:
Creating a Beautiful World

Do you like to get messy? Would you like to create something beautiful but don’t know where to start?

Our visual arts workshop is tailored to all skill levels. Success on the projects will depend on your ability to follow directions and work hard (a little luck never hurts either). This workshop will explore a variety of artistic media and aims to complete as many projects as time allows. Students will be introduced to some new ways of thinking about, and looking at, the world around them. Expect to try something new and to create in a way unlike the ways you have tried before. Most projects will take a few days to complete, but students may work on more than one project in a day.

Hands-on experiences will include:
- One Point Perspective Graffiti Name (paint and markers)
- Styrofoam Printmaking (Styrofoam, paint, and paper)
- Clay Vessels (Brain Bowls – Coil Building)
- Pop-up story (Construction paper, pen, colored pencil, markers, and paper)
- Crazy Collage Superheroes (magazine, scissors, and glue)
- Glaze clay projects (paint dream boxes and brain bowls)
- Radial Design (marker and colored pencil)
- Watercolor Resist Paintings (tape, glue, crayons, watercolor, and paper)
- Painting the famous MSU Rock (if time allows)

Music:
The Science of Sound

Have you ever wondered what goes into making the music that you hear on the radio? Do your favorite musicians really sound that great, or is there a science to their sound?

This workshop will look at how microphones, speakers, and digital recorders work. We will also explore how computers can record, make, modify, and play back sounds, and their role in the process of creating music compositions and sound art. Workshop objectives include looking at the math, science, and computing involved in sampled and synthesized sound.

Hands-on experiences will include:
- Creating several sound art pieces (which students will take home)
- Digital sound recording
- Sound editing
- Microphone, speaker, and digital recording experiences
Archery: “Hope is the Only Thing Stronger than Fear”

Did you know that the bow was invented roughly 10,000 years ago? In the 1400s, the tales of Robin Hood kept readers riveted as he took to the streets of Nottingham with his trusty bow. In 2008, Suzanne Collins revitalized similar themes in her Hunger Games trilogy.

Today, there is a resurgence of interest in archery. The varieties of bows range from longbows, crossbows, and pyramid bows, to recurve bows and reflex and decurve bows.

In this on-site, hands-on workshop, students will have the opportunity to learn the essentials of archery. The foundation for each class will teach fundamentals and drills that will strengthen archers’ confidence and increase their level of proficiency. Each class will build on the previous class. Students will be introduced to the recurve bow, compound bow, and crossbow. Whether you are a beginner or skilled shooter, this class has something to offer everyone. All necessary equipment will be provided.

GATE Girl
New for 2017

Our children (particularly young women) are growing up in a special time and as such, it’s important to help them reaffirm their uniqueness and gifts, as well as entrusting them with the skills that they’ll need to thrive.

MST is offering a new workshop just for girls! GATE GIRL will discuss breaking through the stereotypes of what it means to be a smart woman, while empowering girls to see that being a GATE GIRL is a gift and something to be celebrated. It will also teach girls to not downplay their abilities – instead to highlight them.

This workshop will provide an interactive environment to help girls understand how they can build their own success including understanding body image, social media/media literacy, self-care, building your legacy, career options, college and finding your greatness. Similarly themed topics aimed at empowering young women will be presented in a safe, creative space.

Sample Daily Camp Schedule

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wake-up for residential students</td>
<td>7:00 am</td>
</tr>
<tr>
<td>Breakfast for residential students</td>
<td>7:45 am</td>
</tr>
<tr>
<td>Commuter students arrive at drop-off</td>
<td>8:20 am - 8:35 am</td>
</tr>
<tr>
<td>Walk to class with RAs</td>
<td>8:50 am</td>
</tr>
<tr>
<td>Morning class</td>
<td>9:00 am - 11:00 am</td>
</tr>
<tr>
<td>Lunch</td>
<td>11:30 am</td>
</tr>
<tr>
<td>Afternoon class</td>
<td>12:30 pm - 2:30 pm</td>
</tr>
<tr>
<td>Workshop</td>
<td>3:00 pm - 4:15 pm</td>
</tr>
<tr>
<td>Walk to pick-up/dorms</td>
<td>4:15 pm - 4:30 pm</td>
</tr>
<tr>
<td>Commuter student pick-up*</td>
<td>4:30 pm - 4:45 pm</td>
</tr>
<tr>
<td>Dinner for residential and extended day students</td>
<td>5:00 pm - 6:15 pm</td>
</tr>
<tr>
<td>Extended day commuter student pick-up*</td>
<td>6:15 pm - 6:30 pm</td>
</tr>
<tr>
<td>Study period or group activity for residential students</td>
<td>6:30 pm - 9:30 pm</td>
</tr>
</tbody>
</table>

*Parents cannot pick-up commuter students between 4:45 pm and 6:15 pm. Parents must adhere to pick-up time frames listed above.

*GATE GIRL is intended to empower young women enrolled in MST. In keeping with university standards, and out of respect for the students and families in our program, GATE GIRL will not include any religious or political rhetoric.
FUTURE DOCS
Future Doctors of Osteopathic Medicine
Grades 7-9 • June 18 – 24, 2017

Future DOcs–GATE is a one-week summer commuter or residential camp held on the campus of Michigan State University in partnership with the College of Osteopathic Medicine. The camp is intended for academically able students, who are currently in grades 7, 8, or 9 and at least 12 years old during the 2016-2017 school year.

Have you always dreamed of being a doctor? Is a medical career in your future? If you are interested in a career in health care and have a strong interest in science, this is the program for you! Come learn more about becoming a doctor, nurse, pharmacist, or other health care professional; apply for Future DOcs–GATE.

The purpose of this program is to foster an interest in the STEM fields, create awareness of college admission, and generate a strategy to become a successful health care professional. As a participant, students will discover the content of medical courses through demonstrations and hands-on activities, explore the options for undergraduate majors, and gain information about medical specialties.

Students have the opportunity to work with physicians and community members through their participation in classes encompassing topics such as CPR certification, first aid, EMT, osteopathic manipulative medicine demonstrations, anatomy/physiology training, pathology, dissection, biochemistry, and veterinary medicine.

The Future DOcs program is distinct from any other medical school outreach initiative as it includes enrichment activities held at an actual medical school combined with the interaction of MSUCOM medical students and faculty.

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Important Dates for Future DOcs

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Deadline: May 3, 2017</td>
<td></td>
</tr>
</tbody>
</table>

Class Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 18, 2017</td>
<td>1:00 – 2:30 pm Check-in at residential hall</td>
</tr>
<tr>
<td></td>
<td>3:00 – 4:00 pm Orientation for parents and students (including commuter)</td>
</tr>
<tr>
<td>June 19 – 23, 2017</td>
<td>Classes held Monday – Friday, 9 am – 5 pm</td>
</tr>
<tr>
<td></td>
<td>Extended day is available for commuter students at an additional cost. Financial assistance is available.</td>
</tr>
<tr>
<td>June 24, 2017</td>
<td>11:00 am – 1:00 pm Closing Ceremony</td>
</tr>
</tbody>
</table>

For information about Future DOcs program eligibility, see GATE Program Requirements and Responsibilities on page 5 of this catalog. For information about costs and payment, see Costs and Payment on page 10.
D.O.s, Doctors of Osteopathic Medicine, can be found in small, rural clinics or busy, urban health centers, performing specialized procedures at major research hospitals, or exploring new ways to treat global health threats. There’s a world of opportunity behind those two letters!

The application process is very competitive and space is limited, so apply today.

**What your Tuition Payment Covers**

- Instruction and supervision
- Lab supplies and materials for all class activities
- Future DOcs–GATE Scrubs shirt
- Breakfast and lunch provided Monday – Friday
- Notebook with curriculum information
- Doctor kit

For residential students, all meals are provided for the duration of camp. Residential tuition also covers the cost of housing, 24/7 supervision, and evening activities.

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**Sample Daily Camp Schedule**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commuter students arrive at drop-off</td>
<td>8:00 am - 8:15 am</td>
</tr>
<tr>
<td>Breakfast and networking</td>
<td>8:00 am - 8:30 am</td>
</tr>
<tr>
<td>CPR training</td>
<td>8:30 am - 11:00 am</td>
</tr>
<tr>
<td>Group research</td>
<td>11:00 am - 12:00 pm</td>
</tr>
<tr>
<td>Lunch</td>
<td>12:00 pm - 1:00 pm</td>
</tr>
<tr>
<td>Dissection</td>
<td>1:15 pm - 3:00 pm</td>
</tr>
<tr>
<td>Paramedic visit</td>
<td>3:00 pm - 5:00 pm</td>
</tr>
<tr>
<td>Commuter student pick-up</td>
<td>5:00 pm - 5:15 pm</td>
</tr>
<tr>
<td>Dinner for residential and extended day students</td>
<td>5:30 pm - 6:15 pm</td>
</tr>
<tr>
<td>Extended day commuter student pick-up</td>
<td>6:15 pm - 6:30 pm</td>
</tr>
<tr>
<td>Group activities for residential students</td>
<td>6:30 pm - 9:30 pm</td>
</tr>
</tbody>
</table>

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In response to the high volume of requests for intelligence assessments, MSU’s Gifted and Talented Education and the Psychological Clinic have partnered to offer IQ testing. The clinic, located in the Psychology building on campus, will now offer IQ testing, such as the WISC V test, to students who seek an IQ assessment or wish to apply for a GATE program. Additionally, the clinic administers more extensive evaluations along with an array of therapeutic services for gifted children and their families.

The cost varies based on services requested and rendered. A 20- to 30-minute telephone screening is required to schedule an appointment.

Parents interested in obtaining services may contact the clinic between 8 am and 8 pm Monday through Thursday, and 8 am to 5 pm on Friday. Saturday appointments may be available.

For additional information or to make an appointment at the Psychological Clinic for testing and/or therapy, call 517-355-9564 or visit psychology.msu.edu/clinic

For questions regarding GATE programs call the GATE office at: 517-432-2129
GUPPY
Gifted University for Parents and Precocious Youth
Grades 4-6 • June 24 — 25, 2017

GUPPY is a weekend program offering students in grades 4-6, ages 9-11, a variety of accelerated exploratory educational presentations and hands-on experiences in Michigan State University’s laboratories and classrooms.

GUPPY is designed for young gifted and talented students to attend classes taught by MSU faculty and staff at Michigan State University for two weekend days. This GATE program will offer young gifted students a variety of accelerated exploratory educational presentations and hands-on experiences in MSU’s laboratories and classrooms. Meals will be served in the MSU dining halls. A closing ceremony will celebrate the two-day achievement for the students and parents on Sunday afternoon.

Classes will be STEM-related and may include:

- **3D Mathematics**: Students will explore attributes of three-dimensional space and objects using materials and concrete drawings, build and construct three-dimensional objects, and develop mathematical lingo to describe three-dimensional shapes.

- **Chemistry**: Students will conduct safe and fun experiments to learn about chemical reactions and will learn terms such as atom, element, compound, and mixture, and will gain an understanding of matter—the “stuff” all around us—and its properties.

- **Brain Games**: Students will participate in exciting puzzles and games that continuously challenge their minds and improve critical thinking and problem solving skills—all while having FUN!
• **Creative Writing:** Students will use their lived experiences to tell stories and share opinions on topics they are passionate about. Student will leave with a new piece of writing and plenty of great ideas for other ways to express themselves.

• **Astrophysics:** This campus activity will include touring NSCL’s rare isotope research areas, observing nuclear reactions in stellar environments, noting the interaction of light and matter, and studying stellar evolution.

• **Cyber Enabled Research:** The Laconia supercomputer can perform half a quadrillion floating point operations per second! Supercomputers can perform arithmetic jobs very quickly. What makes these amazing machines so fast? Find out through short videos, games, and hands-on exploration of the hardware.

Parents are invited to attend informational presentations conducted by gifted experts. Sessions such as *Gifted 101, Advocating for your Gifted Child, 2E Students*, and *Ask the Gifted Expert* panel will be offered to provide information and assistance for parents raising gifted children.

**Commuter or hotel stay options:** Families living a distance from campus must accompany their students and may stay overnight at a locally prearranged hotel at a special MSU rate or make reservations on their own with another hotel of their choice. Families are responsible for their own hotel stay and dinners. Local families may commute daily by dropping off and picking up their student each day from campus.

Tuition cost includes one student and one parent or guardian. Commuter tuition cost is $250 including breakfast and lunch both days (1 student and 1 parent).

### Parent “U” Day
**Tentative Schedule Sunday, June 25**

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lunch with student</td>
<td>11:30 am - 12:15 pm</td>
</tr>
<tr>
<td>Parent “U” Begins</td>
<td>12:25 pm</td>
</tr>
<tr>
<td>Understanding Gifted 101</td>
<td>12:30 - 1:30 pm</td>
</tr>
<tr>
<td>My Gifted Student has a Learning Disability</td>
<td>1:45 - 2:45 pm</td>
</tr>
<tr>
<td>Advocating for Your Gifted Child</td>
<td>3:00 - 4:00 pm</td>
</tr>
<tr>
<td>Ask the Expert Panel</td>
<td>4:15 - 5:00 pm</td>
</tr>
<tr>
<td>Snack break with student</td>
<td>5:00 - 5:15 pm</td>
</tr>
<tr>
<td>Closing Ceremony</td>
<td>5:15 - 5:45 pm</td>
</tr>
<tr>
<td>GUPPY students dismissed</td>
<td>5:45 pm</td>
</tr>
</tbody>
</table>

### GUPPY Weekend Experience
**Tentative Schedule Saturday, June 24**

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check-in/drop-off</td>
<td>7:00 - 7:45 pm</td>
</tr>
<tr>
<td>Breakfast</td>
<td>7:00 - 8:00 am</td>
</tr>
<tr>
<td>3D Mathematics</td>
<td>8:15 - 9:40 am</td>
</tr>
<tr>
<td>Chemistry</td>
<td>9:55 - 11:20 am</td>
</tr>
<tr>
<td>Lunch</td>
<td>11:30 am - 12:15 pm</td>
</tr>
<tr>
<td>Brain Games</td>
<td>12:30 - 1:55 pm</td>
</tr>
<tr>
<td>Creative Writing</td>
<td>2:30 - 3:35 pm</td>
</tr>
<tr>
<td>Astrophysics</td>
<td>3:50 - 4:50 pm</td>
</tr>
<tr>
<td>Pick-up or board shuttle</td>
<td>5:00 - 5:30 pm</td>
</tr>
<tr>
<td>Dinner on your own</td>
<td>5:30 - 7:00 pm</td>
</tr>
<tr>
<td>Optional evening activity</td>
<td>7:00 - 9:00 pm</td>
</tr>
</tbody>
</table>

### Tentative Schedule Sunday, June 25

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hotel shuttle pick-up</td>
<td>6:45 pm</td>
</tr>
<tr>
<td>Check-in/drop-off</td>
<td>7:00 - 7:45 pm</td>
</tr>
<tr>
<td>Breakfast</td>
<td>7:00 - 8:00 am</td>
</tr>
<tr>
<td>3D Mathematics</td>
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<td>Lunch</td>
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</tr>
<tr>
<td>Brain Games</td>
<td>12:30 - 1:55 pm</td>
</tr>
<tr>
<td>Creative Writing</td>
<td>2:30 - 3:35 pm</td>
</tr>
<tr>
<td>Cyber Enabled Research</td>
<td>3:50 - 4:50 pm</td>
</tr>
<tr>
<td>Snack break</td>
<td>5:00 - 5:15 pm</td>
</tr>
<tr>
<td>Closing Ceremony</td>
<td>5:15 pm - 5:45 pm</td>
</tr>
</tbody>
</table>

Need-based scholarships available!
DUAL ENROLLMENT

Grades 9-12

Dual enrollment is an opportunity for high school students in grades 9 – 12 to enroll in college courses simultaneously. This is an advantage for students who have exhausted the advanced course options in their high school; they can continue their advanced study by taking an appropriate level college class.

Some high schools may not offer certain elective subjects or advanced courses, but a student with interest and motivation can dual enroll in a college course to explore different courses. Students must receive a minimum qualifying score on a standardized test (such as the EXPLORE, PLAN, PSAT, SAT, or ACT) in order to qualify for dual enrollment. Students applying to Dual Enrollment must have a minimum of a 3.0 GPA. See the GATE website for more details.

All dual enrollment students at public schools can receive tuition assistance from their school. Students at nonpublic schools that meet state reporting requirements can also receive tuition assistance. High schools provide tuition assistance for fall or spring semester courses, but are not obligated to provide tuition assistance for summer semester courses. You may still enroll for summer courses and pay the full cost. Based on dual enrollment law, your school uses a formula to calculate the tuition assistance that it provides to you. Please contact your high school if you have additional questions about tuition assistance.

To apply for dual enrollment at Michigan State University go to gifted.msu.edu/programs/dual-enrollment and follow the application process. Be sure to acquire the necessary approvals from your home school and submit a copy of your current high school transcript.

DUAL ENROLLMENT COURSES

Sample Intro Level Courses

Below are some typical intro level courses that dual enrollment students take at MSU. Some of the courses below have prerequisites—you can view prerequisite information on the GATE website or at schedule.msu.edu. Also refer to the MSU Schedule of Courses website for dates and times that classes are offered.

ENG 140 • Literature and Society – 4 credits
(or other 100-level ENG courses)
Description: Ways of reading literature in its cultural, social, and historical contexts. Literature in relation to other media and cultural forms. Topics vary.

MTH 132 • Calculus I – 3 credits
Description: Limits, continuous functions, derivatives and their applications. Integrals and the fundamental theorem of calculus.

PHY 231C • Introductory Physics I – 3 credits
Description: Mechanics, Newton’s laws, momentum, energy conservation laws, thermodynamics, waves, sound. This is an Internet-based course. (Algebra-based)
PHY 183B • Physics for Scientists and Engineers I – 4 credits
Description: Mechanics, Newton's laws, momentum, energy conservation laws, rotational motion, oscillation, gravity, waves. This course is given in the competency based instruction format. (Calculus-based)

CEM 141 • General Chemistry – 4 credits
Description: Elements and compounds, reactions, stoichiometry, thermochemistry, atomic structure, chemical bonding, states of matter, solutions, acids and bases, aqueous equilibria.

EC 201 • Intro to Microeconomics – 3 credits
Description: Economic institutions, reasoning and analysis. Consumption, production, determination of price and quantity in different markets. Income distribution, market structure, and normative analysis.

EC 202 • Intro to Macroeconomics – 3 credits

CSE 101 • Computing Concepts and Competencies – 3 credits
Description: Core concepts in computing including information storage, retrieval, management, and representation. Applications from specific disciplines. Applying core concepts to design and implementing solutions to various focal problems, using hardware, multimedia software, communications, and networks.

CSE 231 • Intro to Programming I – 4 credits
Description: Introduction to programming using Python. Design, implementation, and testing of programs to solve problems such as those in engineering, mathematics, and science. Programming fundamentals, functions, objects, and use of libraries of functions.

PSY 101 • Introductory Psychology – 4 credits
Description: Mind and behavior from biological, individual, and social perspectives. Scientific and professional aspects of psychology.

SOC 100 • Introduction to Sociology – 4 credits

PHL 101 • Introduction to Philosophy – 3 credits
Description: Theories of knowledge, values, and reality. Topics such as objectivity, relativism and cultural diversity, moral responsibility, aesthetic values, the self, existence of God, free will, minds, and machines.
Ingham Intermediate School District
A Regional Educational Service Agency

Summer 2017 Programs
June 27 - July 22

Ingham Intermediate School District offers programs and services to 12 public school districts, 10 public school academies, over 44,000 students and reaches into seven counties. Our continuum of programs and services includes summer camps to challenge young minds.

CAMPS
For students in grades 6-10

STEAM Geekend Camp
April 22, 2017
This camp is held on a Saturday for students in grades 5-7 who are interested in learning more about science, technology, engineering, arts and mathematics (STEAM). Students have an opportunity to experience multiple programs throughout the day in areas such as robotics, cyber security, artistic photography and more. Registration will be available in February.

Capital Area Career Center Summer Camps
The Capital Area Career Center (CACC) will be hosting several summer camps in areas such as Engineering, Culinary Arts, New Media and more. Registration will be available in April.

Kids’ College
July 11 – 22, 2017
For students in grades 4 or 5
Kids’ College is a two-week learning experience for students who are identified as having high abilities or interest in science.
Cost: $290 (partial/full scholarships may be available based on need).

Mathematics Augmentation Series: Cultivating Optimum Teaching (MASCOT)
June 26 – July 14, 2017
For students who have completed grades 6 or 7
MASCOT is a half-day program, designed to serve students who have been identified as having potential for learning advanced mathematics but who lack some of the skills necessary for total success. This program model allows for development in the content area of mathematics, as well as for better self-understanding through the use of specific guidance strategies and techniques.
Cost: $260 (partial/full scholarships may be available based on need).

NOTE: The Dimensions program, previously run by Ingham ISD, is now combined with MST@MSU. Tuition scholarships are available. See page 24 for information about MST@MSU.

For more information or to apply visit inghamisd.org

Need-based scholarships available!
NOVI PROGRAMS

Fall Semester 2017 – Spring Semester 2018
Fall Semester 2018 – Spring Semester 2019

Novi programs are open to students from Novi and the surrounding area. They are designed to challenge gifted middle and high school students in math, literature, and language arts. Space is limited in academic year programs and the application process is competitive. Apply early!

NOVI PROGRAM CLASSES ARE HELD AT THE
MSU TOLLGATE EDUCATION CENTER
28115 MEADOWBROOK ROAD • NOVI, MI 48377
CHAMP - NOVI
Cooperative Highly Accelerated Mathematics Program
CHAMP 1: Fall Semester 2017 – Spring Semester 2018
CHAMP 2: Fall Semester 2018 – Spring Semester 2019

CHAMP, in partnership with the Department of Mathematics and University Outreach and Engagement at Michigan State University, provides classroom instruction for qualified mathematically gifted students in grades 7-10.

Students enrolled in CHAMP-Novis do not need to take a math class at their home school.

CHAMP-Novis is open to students from Novi and the surrounding area. The program is designed so that participating students will fulfill, in two years, four years of high school math, meeting the Michigan High School Content Expectations (HSCE) and the Common Core National Standards.

In their first year of CHAMP, students study Algebra I and II. In their second year, students study geometry and a standard pre-calculus course such as trigonometry, analytic geometry, college algebra, or a brief introduction to calculus concepts. CHAMP students typically begin the program with Algebra I. It is possible that a student may be allowed to bypass one or more CHAMP courses, but only in very unique circumstances.

**CHAMP-Novis costs**
- $750 per semester (1500 per academic year)
- $100 distance learning fee
- $100 non-refundable reservation fee
- Cost of books

**Instructional Plan**
Each class lasts 2½ hours. Throughout the year, there are also regularly scheduled CHAMP labs outside of school hours for students needing assistance with their assignments or for those preferring to study cooperatively with other CHAMP students.

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**Important Dates for CHAMP-Novis**

**Application Deadline:** May 3, 2017

**Class Schedule**
September 2017 – May 2019
6:00 – 8:30 pm
Classes held Tuesdays (Tentative)
MSU Tollgate Education Center
28115 Meadowbrook Road • Novi, MI 48377

**Information Meeting**
Wednesday, March 15, 2017
5:00 – 7:00 pm
For Parents and Students interested in GATE Programs

For information about CHAMP-Novis program eligibility, see GATE Program Requirements and Responsibilities on page 5 of this catalog. For information about costs and payment, see Costs and Payment on page 10.
Students will be given an MSU account for the CHAMP course website to access coursework, homework assignments, and to ask questions using online forums.

**Program Goals**

All CHAMP curricula are aligned with the Michigan High School Curriculum Expectations and meet the Common Core National Standards.

The mathematics content follows the traditional high-level, four-year high school curriculum: two years of algebra, plane/solid geometry, trigonometry, and analytic geometry. The students typically complete this content in two years and receive mathematics credit on their high school transcripts; a written evaluation documents mastery and assigns a grade for each course. Compressing learning into a shorter time frame in just one subject could make two or more years available in high school for other desired courses, e.g., foreign language or college mathematics courses.

Most students completing CHAMP should be prepared to enroll in an honors high school calculus course, an Advanced Placement high school calculus course, or an honors level college calculus course. See page 6 for GATE program requirements.

**Parent Responsibilities**

Contact school district representative(s) and home middle school and prospective high school to verify the student’s institution:

- Will accept the CHAMP credits as four years of high school math credit.
- Will provide appropriate course opportunities upon the student’s return to normal class schedules.
- Will not make the student repeat any math requirements.

These accommodations and acceptance should be verified by the parent prior to enrollment in any GATE program. If verified, students do not need to take a math class at their home school. However neither GATE nor MSU guarantees acceptance of any credit by a student’s home school.
ISHALL - NOVI
Intensive Studies in Humanities, Arts, Language and Literature
ISHALL 1: Fall Semester 2017 – Spring Semester 2018
ISHALL 2: Fall Semester 2018 – Spring Semester 2019

ISHALL, in partnership with the Michigan State University Department of English, Department of Writing, Rhetoric, and American Cultures, and University Outreach and Engagement, provides classroom instruction for qualified language arts students in grades 7-10.

Important Dates for ISHALL-Novi
Application Deadline: May 3, 2017

Class Schedule
September 2017 – May 2019
4:00 – 6:00 pm
Classes held Tuesdays (Tentative)
MSU Tollgate Education Center
28115 Meadowbrook Road • Novi, MI 48377

Information Meeting
Monday, March 15, 2017
5:00 – 7:00 pm
For Parents and Students interested in GATE Programs

For information about ISHALL-Novi program eligibility, see GATE Program Requirements and Responsibilities on page 5 of this catalog. For information about costs and payment, see Costs and Payment on page 10.

Because students are studying typical high school literature content, ISHALL curriculum may contain mature content that is not appropriate for all students. Parents need to review the sample curriculum and determine if their student is ready for the ISHALL curriculum.

ISHALL-Novi is open to students from Novi and the surrounding area. The program is designed so that participating students will complete in two years the English content assigned in Michigan High School Content Expectations, for all four years of high school as well as meet the Common Core National Standards. ISHALL year one covers grade 9 and 10 curriculum. ISHALL year two covers grade 11 and 12 curriculum.

Students will study a wide range of texts and media in literature and the humanities including novels, biographies, plays, poetry, and film. Students will also be exposed to a variety of historical movements and types of literature, such as romanticism, enlightenment, Shakespearean drama, and comedy, in addition to modern works.

ISHALL-Novi costs
• $750 per semester ($1500 per academic year)
• $100 distance learning fee
• $100 non-refundable reservation fee
• Cost of books
**Instructional Plan**

On Tuesdays after school, students come to the Tollgate Education Center in Novi for their English classes. Families are responsible for transportation. Each class lasts 2 hours. Throughout the year there are also regularly scheduled ISHALL labs on Sundays. These are for students who may need assistance with their assignments or for those preferring to study cooperatively with other ISHALL students. Students will be given an MSU account for the ISHALL course website to access coursework and homework assignments.

**Class Content and Procedures**

The instructor prepares class activities that provide students with a conceptual and theoretical framework for the skills, processes, genres, concepts, and paradigms involved in reading, writing, speaking, and interpreting. Guided discussion encourages students to be active readers, speakers, and questioners, while both creative and expository writing assignments provide opportunities for literary analysis, self-expression, the development of writing, rhetorical, and analytical skills, and the kind of understandings of literary and written expression that come from doing it themselves.

The first year course introduces material more quickly than Grade 9 or Grade 10 language arts classes, but also focuses on enabling students to work with texts at greater depth and with greater consciousness of critical and theoretical models. The second year introduces more material more quickly, building on the conceptual and skills foundation built the first year.

Class time ranges between discussion, model analysis, presentations, group work assignments, and writing workshops with more individual attention. Homework reinforces concepts and skills presented in class; assignments may invite students to engage with texts in specific ways or ask them to define the ways they wish to read. Always, such choices will be discussed in class, underlying assumptions will be examined, and students may be asked to take an opposing position or come up with an alternate interpretation.

Some homework will focus on having students revisit and refine previous writing assignments, as revision is a crucial part of the writing process. The concepts and skills of writing and interpretation take into account multiple capabilities, but students soon learn to craft well-supported logical arguments as a way to produce and present interpretations.

Creative activities gained from this critical expertise, and the synergy of the activities together, make students more sensitive readers and more effective writers. Because there are no single answers in this process, but only good questions and arguments, students learn quickly that correctness is less important than communication and that facts are sometimes less crucial in understanding a text than feelings. These courses strive to help students understand the richness of meaning and expression in literature and their own writing.

**Evaluation of Student**

The most direct measure of the program’s success is the student’s demonstrated progress in English content as evidenced by performance on nationally standardized examinations and tests devised by the instructors, a student portfolio and three different writing submissions (essay, creative, research). Pre- and post-test results from ISHALL suggest that students were presented material not previously known to them, and that they were successful in mastering it.

Progress in mastering subject matter is monitored regularly through graded weekly homework assignments, quizzes, and teacher-constructed tests. Midterm reports and end-of-semester (January and May) written evaluations are sent to each student’s parents and school district as requested by the parents. These reports include details on progress in content, participation, and letter grades. Student-teacher conferences (October, February, and as needed) are scheduled and student self-evaluation is strongly encouraged and developed. In addition to the monitoring of subject matter achievement, the social and emotional needs of participating students are also addressed periodically through group meetings and individual conferences with students and/or families as necessary.

**Parent Responsibilities**

Contact school district representative(s) and home middle school and prospective high school to verify the student’s institution:

- Will accept the ISHALL credits as four years of high school English credit.
- Will provide appropriate course opportunities upon the student’s return to normal class schedules.
- Will not make the student repeat any English requirements.

These accommodations and acceptance should be verified by the parent prior to enrollment in any GATE program. If verified, students do not need to take an English class at their home school. However, neither GATE nor MSU guarantees acceptance of any credit by a student’s home school.
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EXPO Zone
Belle Isle Park

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APRIL 8, 2017
7:00 p.m. | Kellogg Center, Auditorium

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A PODCAST ABOUT FOOD, WITH A SIDE OF SCIENCE AND HISTORY!

In this special performance of the podcast Gastropod, co-hosts Cynthia Graber and Nicola Twilley will serve up a three-course feast for your eyes and ears. From live experiments to interactive tastings, the evening will combine special guests and field recordings to reveal the secret history and science behind the food we eat every day.

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What is SYP?

A website that displays a wide range of exciting opportunities for pre-K through 12th graders to improve their knowledge and skills in specific subject areas.

Pre-college programs are an excellent way for students to explore majors or careers while being introduced to the college environment.

With over 200 listings covering topics in agriculture, art, business, computers, engineering, math, music, science, sports, and writing, MSU is sure to have a program for every student!

You can search the SYP website for:
• summer and school year programs
• opportunities to earn college credit
• residential experiences on the MSU campus
• financial assistance
• study abroad possibilities

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Who will be our next generation’s engineers, scientists, physicists, artists, authors, detectives, musicians, astronomers? Who will be leaders and problem solvers of tomorrow?

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