Your journey with GATE begins here

Apply online at gifted.msu.edu
Dear Parents and Students,

The GATE office is excited to announce that we have expanded our summer programs to include students in grades 3-10! Students can have a unique GATE program experience each summer, while building on skills and concepts they have learned in previous GATE programs.

The advanced curriculum of each program is developed with gifted students in mind—students will engage with topics and concepts that are several years advanced for their current grade level.

Please reference the Application Guideline charts below based on your student’s current grade level to see where your student fits.

There are two programmatic changes for Summer 2018.

First, the GUPPY program now has different curriculum for grades 3-4 and for grades 5-6. You can view the different topic “tracks” for each grade level on page 25.

Second, we have reorganized the MST@MSU experience into two separate programs to better serve different grade levels. MST@MSU will be a one-week program for grades 7-8. MSTL (Math, Science, Technology, and Leadership) will be a two-week program for grades 9-10, which includes an additional leadership component. You can learn more about the new structure of these programs in this catalog and on the GATE website, gifted.msu.edu.

GATE Academic Year programs remain the same, serving students in grades 7-9. All four Academic Year programs occur on the MSU campus. Additionally, CHAMP: Math and ISHALL: English occur in Novi for students living in areas surrounding Novi.

The application deadline for all programs is May 2, 2018.

Summer programs have rolling admissions, so complete your application early!
For Academic Year programs, decisions are made after the May 2 deadline.
We encourage you to apply early to ensure you have all materials submitted by the deadline.

Summer Program Application Guideline

<table>
<thead>
<tr>
<th>During Spring 2018, if you are in...</th>
<th>...you can apply for the following Summer Programs:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grades 3 or 4</td>
<td>GUPPY 3-4</td>
</tr>
<tr>
<td>Grades 5 or 6</td>
<td>GUPPY 5-6</td>
</tr>
<tr>
<td>Grades 7 or 8</td>
<td>MST@MSU, Future DOcs, CSI</td>
</tr>
<tr>
<td>Grade 9</td>
<td>MSTL, Future DOcs, CSI</td>
</tr>
<tr>
<td>Grade 10</td>
<td>MSTL</td>
</tr>
</tbody>
</table>

Academic Year Application Guideline

<table>
<thead>
<tr>
<th>During Spring 2018, if you are in...</th>
<th>...you can apply for Fall 2018 Academic Year Programs:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grades 6, 7, or 8*</td>
<td>CHAMP: Math, ISHALL: English, LEAF: French, ALL: Latin</td>
</tr>
</tbody>
</table>

*Please note that students begin these programs in the Fall of their 7th, 8th, or 9th grade year. For example, to begin the program in the Fall of 7th grade, students must apply in the spring of their 6th grade year.
# TABLE OF CONTENTS

About Gifted and Talented Education .................................................. 2

GATE Program Requirements ............................................................... 4

What to Expect from your GATE Program ............................................ 6

Costs and Payment ............................................................................... 10

## Academic Year Programs ................................................................. 13

- CHAMP (Math) .................................................................................. 14
- ISHALL (English) ............................................................................. 16
- LEAF (French) .................................................................................. 18
- ALL (LATIN) ................................................................................... 20

## Summer Programs ........................................................................... 23

- GUPPY ............................................................................................ 24
- CSI .................................................................................................... 26
- Future DOcs .................................................................................... 28
- MST .................................................................................................. 30
- MSTL .............................................................................................. 34
- Dual Enrollment .............................................................................. 38
- Ingham ISD ..................................................................................... 40

Apply online at gifted.msu.edu
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 3-12.

Academic Year Programs

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

Our academic 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 pages 4-5 for details.

Academic year programs include:

Cooperative Highly Accelerated Mathematics Program (CHAMP)
For students in grades 7-9, offered on campus. The CHAMP program begins with Algebra 1. CHAMP-Nov is another location of this program, which is available at the Tollgate Education Center in Novi, MI.

Intensive Studies in Humanities, Arts, Language, and Literature (ISHALL)
For students in grades 7-9, offered on campus. ISHALL begins with grade 9 English curriculum. ISHALL-Nov is another location of this program, which is available at the Tollgate Education Center in Novi, MI.

Langue pour Étudiants Avancés de Français (LEAF)
For French students in grades 7-9, offered as a hybrid class with mostly online curriculum, as well as in-person meetings on campus only once per month, to better accommodate students not from the local area. LEAF begins with French 1 curriculum.

Amo Linguam Latinam (ALL)
For Latin students in grades 7-9, offered as a hybrid class with mostly online curriculum, as well as in-person meetings on campus only once per month, to better accommodate students not from the local area. ALL begins with Latin 1 curriculum.

ALL: Latin is on hiatus for the 2018-19 academic year. A new cohort of students will begin the program in Fall 2019.
Summer Programs

Summer programs have rolling admissions and fill up quickly! Complete your application early.

GATE summer programs offer students the chance to experience advanced coursework and the college campus alongside their high achieving peers. Programs include a residential option for grades 7 and above (minimum age of 12), as well as a commuter option for all programs.

Summer programs include:

Gifted University for Parents and Precocious Youth (GUPPY)

June 30 – July 1 • The two-day GUPPY program is for grades 3-4.
June 29 – July 1 • The three-day GUPPY program is for grades 5-6.

GUPPY offers a variety of exploratory educational presentations and hands-on experiences in Michigan State University’s laboratories and classrooms. There are several advanced topic “tracks” for students to choose from, each with their own combination of STEAM-based classes.

CSI and Forensic Science

June 24 - June 29 • Students in grades 7-9 will learn from forensic science professionals and apply their newly gained scientific and investigative skills to a variety of mock crime scenes, using real crime scene equipment.

Future DOcs

June 24 – June 29 • This program for grades 7-9 will cover all aspects of health care professions and introduce students to medical specialties. Students will discover the content of medical courses through hands-on activities and demonstrations.

Math, Science, and Technology (MST@MSU)

July 8 – July 13 • A one-week residential or commuter program for students in grades 7-8. MST classes and workshops are offered in a wide range of topics, such as computer science, chemistry, debate, and more. See individual course descriptions for details. Students will take two classes plus one workshop.

Math, Science, Technology, and Leadership (MSTL)

July 8 – July 20 • A two-week residential or commuter program for students in grades 9-10. This program offers advanced topics such as microbiology and animation. Students will choose two STEM courses, as well as one Leadership Workshop. Leadership Workshops are designed to introduce students to concepts and skills required to be a leader in STEM fields.

APPLYING FOR A GATE PROGRAM?

NEED TO TAKE THE SAT?

TEST AT MSU ON MARCH 10TH

Take the SAT at Michigan State University on March 10th with other middle school students! To register, visit sat.org/register or toolbox.ctd.northwestern.edu

The deadline to register is February 6 for NUMATS and February 9 for College Board.

The March 10 testing day is unique because it includes a separate testing room specifically for middle school students who take the SAT at Michigan State University.

The testing fee is

$46 without essay (sat.org)
$88 with out essay (numats)

To register for the exam:
1. For ages 13 and above*, visit sat.org/register
2. Either sign in to your SAT account or sign up
3. Select the date you wish to test (March 10)
4. Select Michigan State at Bessey Hall as your testing location
5. Complete the remaining steps of the registration

*Sponsored by:
gifted.msu.edu
GATE PROGRAM REQUIREMENTS

All GATE applicants must submit a recent grade report with strong grades/GPA, a teacher recommendation form, and a test score report. Please see the chart on the next page for acceptable tests for each program and minimum score requirements. An IQ score report is also acceptable in place of the listed tests.

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 orientation session and mid-semester 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 most GATE Programs, students need to meet the criteria for the ACT or SAT. Students need to take and submit scores for only one of these tests.

ACT/SAT Testing Providers

ACT dates:
February 10 and April 14, 2018

SAT dates:
March 10, 2018

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

* Please note: The above test dates are the only ACT/SAT test dates GATE will accept for all program applications. May and June test dates are NOT acceptable because they are past the GATE application deadline. An alternative to the above dates is to schedule an IQ test with the MSU Psychological Clinic: 517-355-9564

GATE PROGRAM REQUIREMENTS

GATe Program r equireMenTS

GATE PROGRAM REQUIREMENTS

4 gifted.msu.edu Need-based scholarships available!
# Minimum Test Scores Required for GATE Programs

(Grades 7 and up)

<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>CSI &amp; Forensic Science</td>
<td>19</td>
<td>x</td>
<td>x</td>
<td>20</td>
<td>470</td>
<td>x</td>
<td>900</td>
<td>510</td>
<td>x</td>
<td>1000</td>
</tr>
<tr>
<td>Future Docs</td>
<td>19</td>
<td>x</td>
<td>x</td>
<td>20</td>
<td>470</td>
<td>x</td>
<td>900</td>
<td>510</td>
<td>x</td>
<td>1000</td>
</tr>
<tr>
<td>MST</td>
<td>18</td>
<td>x</td>
<td>x</td>
<td>19</td>
<td>460</td>
<td>x</td>
<td>880</td>
<td>500</td>
<td>x</td>
<td>980</td>
</tr>
<tr>
<td>MSTL</td>
<td>20</td>
<td>x</td>
<td>x</td>
<td>21</td>
<td>480</td>
<td>x</td>
<td>920</td>
<td>520</td>
<td>x</td>
<td>1020</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.

Note: If your scores come close to meeting the above stated minimums, we encourage you to still apply, as the application review process is holistic and will also take into consideration the other aspects of your application.

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# Test Scores Accepted for the GUPPY Program

<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 3-4</td>
<td>410</td>
<td>410</td>
<td>90th Percentile</td>
<td>95th Percentile</td>
<td>95th Percentile</td>
<td>Level 4</td>
</tr>
<tr>
<td>GUPPY 5-6</td>
<td>410</td>
<td>410</td>
<td>x</td>
<td>95th Percentile</td>
<td>95th Percentile</td>
<td>Level 4</td>
</tr>
</tbody>
</table>

Note:
An IQ score report is acceptable for all programs, in place of the tests listed above. For IQ testing information see the ad on page 27.
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 people’s 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. Through the process of adjusting to the program students will learn perseverance with mental tasks. Other students tend to view any effort that is less than 100% correct as 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 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.

Because of the accelerated and demanding nature of the Academic Year programs, students will be allowed to enroll in one Academic Year program per year. Students are welcome to apply to more than one Academic Year program – if accepted to multiple programs, they can choose which one they would like to enroll in for the upcoming year, and then enroll in another program the following year.

**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>Because residential 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>GUPPY</td>
<td>No**</td>
<td>Yes</td>
</tr>
<tr>
<td>CSI &amp; Forensic Science</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Future DOcs</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>MST: Math, Science, Technology</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>MSTL: Math, Science, Technology &amp; Leadership</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Dual Enrollment College Classes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*Students must be at least 12 years old to stay in the dorms.

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

**Commuter Camp FAQs**

**When and where do I drop off and pick up my child?**
- 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 several days, one week, 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.
WHAT TO EXPECT FROM YOUR GATE PROGRAM

- 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 Lead Supervisors 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 Lead Supervisors are adults who are experienced at running summer programs. They are assisted by RAs who are current MSU students. RAs are selected because of their commitment to education and ability to interact well with young people.
- The residential staff members live in the residence hall on the same floor as students 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 bring between $20 and $40 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.

MSU Non-Discrimination Statement:

MSU’s Anti-Discrimination Policy prohibits acts of discrimination and harassment against any university community member(s) by inappropriately limiting employment opportunities, access to university residential facilities, or participating in educational, athletic, social, cultural, or other university activities on the basis of age, color, gender, gender identity, disability, height, marital status, national origin, political persuasion, race, religion, sexual orientation, veteran status or weight. Complaints under this policy may be submitted to the Office of Institutional Equity for investigation.
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
- Weekend programs
- Rigorous, individualized online courses
- 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)
COSTS AND PAYMENT

For CSI, Future DOcs, MST, and MSTL, 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/CHAMP-Novii,
ISHALL/ISHALL-Novii,
LEAF, and ALL

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 do not submit a new application, but must pay a non-refundable $50 reservation fee confirming their intent to continue participating in the program.

Tuition
Tuition is $1,500 per year ($750 is due before the beginning of each semester). Tuition is separate from “Reservation Fees” and “Other Costs.” 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 family.

CHAMP: Parents are responsible for purchasing a graphing calculator for their students. The TI-83+ is preferred.

ISHALL: Parents are responsible for purchasing the assigned books for their students.

LEAF: There is a $100 technology fee for this hybrid program.

ALL: There is a $100 technology fee for this hybrid program. Parents are responsible for purchasing the assigned books for their students.
CHAMP-Nov and ISHALL-Nov: Students pay a $100 facility fee for these off-campus programs. Parents are responsible for purchasing the assigned books 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  
(GUPPY, CSI, Future DOcs, MST@MSU, and MSTL)

Application Fee
The CSI, Future DOcs, MST@MSU, and MSTL 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
GUPPY 3-4: $275 (includes lunch for the student).

GUPPY 5-6: $350 (includes lunch for the student).

For both GUPPY programs: Please see the other costs section for hotel information for out-of-town families. Saturday dinner will be provided for students and family members during the evening activity (attendance is optional). End of day Sunday, finger food will be provided prior to the Closing Ceremony for students and family members.

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

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

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
CSI, Future DOcs, MST@MSU, and MSTL: Once accepted into the program, each student must pay a $150 tuition deposit confirming intent to participate. You will be notified of the deadline 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 enrolled, students will be billed by the MSU Student Accounts office. 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
CSI, Future DOcs, MST, and MSTL: 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.

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 and 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

On Campus Dining: Family members may eat in MSU dining halls see eatatstate.msu.edu for details.
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 for summer programs 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. A student who withdraws in writing within 14 days before the program start date or after the program begins is not eligible for any 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. 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. 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.
ACADEMIC YEAR PROGRAMS

Fall Semester 2018 – Spring Semester 2019

Our academic 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 (MATH)

Cooperative Highly Accelerated Mathematics Program

CHAMP 1: Fall Semester 2018 – Spring Semester 2019
CHAMP 2: Fall Semester 2019 – Spring Semester 2020

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 7-9.

Important Dates for CHAMP Programs

Application Deadline: May 2, 2018

CHAMP at MSU
Classes held Thursdays
First Day of Class
Thursday, August 30, 2018 (Tentative)
1:00 – 3:30 pm
MSU campus – Room TBD

CHAMP-Novis
Classes held Mondays
First Day of Class
Monday, September 10, 2018 (Tentative)
6:00 – 8:30 pm
Tollgate Education Center
28115 Meadowbrook Road • Novi, MI 48377

CHAMP-Novis Information Meeting - March 5, 2018
See page 17 for details

For information about CHAMP program eligibility, see
GATE Program Requirements on page 4 of this catalog
For information about costs and payment, see Costs and Payment on page 10

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 1 and Algebra 2.

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).

Students must begin CHAMP with the study of Algebra 1. Bypassing one or more CHAMP courses is not allowed.

<table>
<thead>
<tr>
<th>CHAMP Schedule:</th>
<th>Course:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1 (Fall, Year 1)</td>
<td>Algebra 1</td>
</tr>
<tr>
<td>Semester 2 (Spring, Year 1)</td>
<td>Algebra 2</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>

Instructional Plan

Students attend one class per week at their program location: MSU Campus in East Lansing or Tollgate Center in Novi. For the MSU class, students are dismissed early one afternoon each week from their respective schools in order to attend CHAMP. Each class lasts 2.5 hours. Traditional high school curriculum is taught at an accelerated pace, requiring the student to learn to be motivated and self-guided outside of the classroom to complete substantial homework. 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 Common Core curricula have been incorporated into the CHAMP 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 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 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 in-person with the teacher about their child’s progress. Parents are welcome to contact the professor at any time with questions or concerns.

Program Goals

The mathematics content follows the traditional high-level, four-year high school curriculum: two years of algebra, plane/solid geometry, analytic geometry, and pre-calculus/trigonometry. The students complete this content in two years and receive mathematics credit on their high school transcripts; a grade report 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.

Students completing CHAMP should be prepared to enroll in an honors high school calculus course, an advanced placement (AP) high school calculus course, or a 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/programs/dual-enrollment

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.

Credit and grades are recorded on the student’s high school transcript.
ISHALL (ENGLISH)

Intensive Studies in Humanities, Arts, Language, and Literature

ISHALL 1: Fall Semester 2018 – Spring Semester 2019
ISHALL 2: Fall Semester 2019 – Spring Semester 2020

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 7-9.

Important Dates for ISHALL Programs

Application Deadline: May 2, 2018

ISHALL at MSU
Classes held Tuesdays or Wednesday*
First Day of Class
Tuesday, August 28, or Wednesday, August 29, 2018 (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.

ISHALL-Novi
Classes held Mondays
First Day of Class
Tuesday, August 28, Monday, September 10, 2018 (Tentative)
4:00 – 6:00 pm
Tollgate Education Center
28115 Meadowbrook Road • Novi, MI 48377

ISHALL-Novi Information Meeting - March 5, 2018
See page page 17 for details

For information about ISHALL program eligibility, see GATE Program Requirements on page 4 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 available in the online ISHALL Program Handbook 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. The ISHALL program is taken in place of high school English courses, and ISHALL credit and grades are recorded on the high school transcript.

Students must begin ISHALL with the Grade 9 English curriculum. Bypassing one or more courses is not allowed.

<table>
<thead>
<tr>
<th>ISHALL Schedule:</th>
<th>Course:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1 (Fall, Year 1)</td>
<td>Grade 9 English curriculum</td>
</tr>
<tr>
<td>Semester 2 (Spring, Year 1)</td>
<td>Grade 10 English curriculum</td>
</tr>
<tr>
<td>Semester 3 (Fall, Year 2)</td>
<td>Grade 11 English curriculum</td>
</tr>
<tr>
<td>Semester 4 (Spring, Year 2)</td>
<td>Grade 12 English curriculum</td>
</tr>
</tbody>
</table>

Program Features

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.

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. Students will be provided with an MSU account to access the online course management website where assignments, resources, and forums are available.

Classes are small, optimally sized for fostering discussion while permitting the kind of individual attention often necessary for working through issues of expression. ISHALL emphasizes the wealth and variety of expressive possibilities as well as modes of critical engagement.

Guided discussion encourages students to be active readers, speakers, and questions, while both create and expository writing assignments provide opportunities for literary analysis, self-expression, and the development of writing, rhetorical, and analytical skills.

**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 English course opportunities upon the student’s return to normal class schedules for the remaining high school years.
- 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.

Note: Parents are responsible for purchasing all books assigned in the ISHALL curriculum. A final book list will be provided before the program begins.

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

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**GATE Novi Programs**

**Information Meeting**

**March 5, 2018**

**6:00-8:00 pm**

Tollgate Education Center
28115 Meadowbrook Rd
Novi, MI 48377

Learn about the
CHAMP-Nov: Math and
ISHALL-Nov: English accelerated
programs, for students in grades 7-9.

All students from areas surrounding Novi are welcome!

RSVP at
[gifted.msu.edu/novi2018info](http://gifted.msu.edu/novi2018info)
LEAF (FRENCH)

Langue pour Étudiants Avancés de Français

LEAF 1: Fall Semester 2018 – Spring Semester 2019
LEAF 2: Fall Semester 2019 – Spring Semester 2020

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 7-9 who have advanced skills in language arts/French.

**Important Dates for LEAF Programs**

**Application Deadline:** May 2, 2018

**LEAF**

**Classes held Thursdays**

First Day of Class

Thursday, August 30, 2018 (Tentative)

4:15 – 6:30 pm

**Hybrid Class**

Weekly online synchronous classes held via live online video (Zoom).

Face-to-face assessment at the MSU Campus on six Thursdays each semester – Room TBD.

**Online Lab Sessions**

Sundays, 1:00 – 3:00 pm (online via Zoom)

Students attend 1 hour of their choice each week (1:00 - 2:00pm or 2:00 - 3:00pm).

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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.

**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 teaching assistant (TA) 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.
ALL (LATIN)
Amo Linguam Latinam (I Love Latin!)
Grades 7-9

ALL provides classroom instruction for students in grades 7-9 who have advanced skills in language arts.

THE ALL: LATIN PROGRAM IS ON HIATUS FOR THE 2018-2019 ACADEMIC YEAR.
A new cohort of students will begin the program in Fall 2019, and the application period will be January – May, 2019.

Hybrid Class
Face-to-face class at the MSU Campus
on the third Tuesday of each month – Room TBD.
All other Tuesday classes held via live online video (Zoom).

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. 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 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:

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

For information about ALL program eligibility, see GATE Program Requirements on page 4 of this catalog.
For information about costs and payment, see Costs and Payment on page 10.
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 and 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 complete assignments online on a regular basis helps students 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 with feedback and language interaction.

Easy access
Students can do their homework from any computer with Internet access.
SOMETHING FOR EVERYONE 17 DAYS | 200+ ACTIVITIES | STATEWIDE

Special Guest Speaker
Monday April 9, 2018 at 7 pm
Erika Bergman
National Geographic Explorer

full schedule available at:
sciencefestival.msu.edu
GATE summer programs offer students the chance to experience advanced non-credit coursework and the college campus alongside their high achieving peers. Summer program applications are reviewed on a rolling basis and classes fill up quickly. Apply early!
GUPPY
Gifted University for Parents and Precocious Youth
Grades 3-4 • June 30 – July 1, 2019
Grades 5-6 • June 29 – July 1, 2018

GUPPY is a weekend program offering students in grades 3-6 a variety of accelerated exploratory educational presentations and hands-on experiences in Michigan State University’s laboratories and classrooms.

Important Dates for GUPPY Programs

Application Deadline: May 2, 2018

GUPPY 3-4
June 30 - July 1, 2018

GUPPY 5-6
June 29 - July 1, 2018

Parent University
July 1, 2018
9:00 am – 5:00 pm

Closing Ceremony
For both GUPPY programs: A Closing Ceremony for all students and parents will be held on Sunday, July 1, 2018 between 5:00-6:00 pm.

For information about GUPPY program eligibility, see GATE Program Requirements on page 4 of this catalog.
For information about costs and payment, see Costs and Payment on page 10.
**GUPPY 3-4 Track Options**  
Grades 3-4 • June 30 – July 1, 2019

Students in Grades 3-4 will take the classes in one of the tracks below. On the application, you will be asked to rank the tracks in order of preference. Space is limited in each track, and each track will be filled on a first-come first-served basis. The sooner you complete your application, the more likely you are to receive your first track choice.

<table>
<thead>
<tr>
<th>Tracks:</th>
<th>Class 1:</th>
<th>Class 2:</th>
<th>Class 3:</th>
<th>Class 4:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Track A</td>
<td>Astrophysics</td>
<td>Chemistry</td>
<td>Creative Writing</td>
<td>3D Math</td>
</tr>
<tr>
<td>Track B</td>
<td>Math is SmART</td>
<td>Neuroscience: Inside Out!</td>
<td>Art: Mission to Mars</td>
<td>Scientific Shift: Experiment Design</td>
</tr>
<tr>
<td>Track C</td>
<td>Math is SmART</td>
<td>Art: Superheroes</td>
<td>Understanding DNA</td>
<td>Invent, Create, &amp; Design your own Disneyland!</td>
</tr>
</tbody>
</table>

**GUPPY 5-6 Track Options**  
Grades 5-6 • June 29 – July 1, 2018

Students in Grades 5-6 will take the classes in one of the tracks below. On the application, you will be asked to rank the tracks in order of preference. Space is limited in each track, and each track will be filled on a first-come first-served basis. The sooner you complete your application, the more likely you are to receive your first track choice.

<table>
<thead>
<tr>
<th>Tracks:</th>
<th>Class 1:</th>
<th>Class 2:</th>
<th>Class 3:</th>
<th>Class 4:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Track 1</td>
<td>Future DOcs Jr.</td>
<td>Junior MDs</td>
<td>Vet Med Jr.</td>
<td>Junior Advanced Cardiac Life Support (ACLS)</td>
</tr>
</tbody>
</table>
| Track 3 | Awesome Astronomy | Structure Scruples: Teamwork and Problem Solving | **Mini-workshops:** (1 each day)  
MSU Center for Advanced Microscopy  
Understanding my Money (MSUFCU)  
MSU Science Museum | Art: Wizards, Warriors, and Dragons |
CSI and Forensic Science
Grades 7-9 • June 24 – 29, 2018

The CSI and Forensic Science program 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.

Important Dates for CSI and Forensic Science

Application Deadline: May 2, 2018

Class Schedule
June 24, 2018
1:00 - 2:30 pm - Check-in at residential hall
3:00 - 4:00 pm - Orientation for parents and students (including commuter)

June 25 - 29, 2018
Classes held Monday – Friday, 9 am – 5 pm
Lunch included for all students (including commuter)
Extended day is available for commuter students at an additional cost.

June 29, 2018
Check-Out and Closing Ceremony will occur on Friday, June 29, 2018 around 5:00 pm

For information about CSI and Forensic Science program eligibility, see GATE Program Requirements on page 4 of this catalog.
For information about costs and payment, see Costs and Payment on page 10.

PROGRAM ENROLLMENT IS LIMITED. APPLY EARLY!

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 scientific knowledge can be applied to aid in criminal investigations. Throughout the week, students will learn methods used to collect evidence from mock crime scenes and the scientific methods and techniques used to analyze evidence in the laboratory. At the end of the week, students will be exposed to the legal side of forensic science with the opportunity to testify in a mock trial.

What your Tuition Payment Covers

• Notebook with class handouts and presentations
• Lab supplies and materials for course activities
• 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.

CSI and Forensic Science Curriculum

This CSI and Forensic Science program 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 and Forensic Science 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.

While at camp, students will:

• Document and collect evidence from a crime scene, including sketching, photographing, and maintaining proper documentation of the evidence.
• Receive hands-on training in how to process and analyze the main types of evidence encountered in forensic laboratories, including controlled substances, blood, DNA, latent prints, firearms, and trace evidence. Through the analysis of mini crime scenes, students will appreciate that in the real world all of these subdisciplines collaborate to ultimately solve a crime.
• Be introduced to other forensic science disciplines. The disciplines covered change from year to year but may include art, anthropology, entomology, and pathology. Again, students will be given hands-on training in these disciplines from experts in the field.
• Process a mock crime scene under the supervision of forensic experts. Students will work in teams to collect the evidence at the scene and then analyze the evidence in the laboratory. Students will
interpret their laboratory findings in order to identify a suspect.

- Be introduced to the legal side of forensic science with the opportunity to observe and participate in a mock trial.
- Present their final evidence and analytical results to the parents on the last day of camp.
- Learn about the various opportunities available for careers in forensic science as well as the education required for those careers.

**Academic Focus**

Students will learn how crime scene investigators collect evidence from crime scenes and how forensic scientists analyze the evidence in the laboratory, draw conclusions from their analyses, and then ultimately present their findings in a court of law. Each day, educational presentations will be given by forensic experts from various disciplines. Students will then have the opportunity to gain practical experience in the methods and techniques presented during lectures. Students will work in the university laboratories in small groups (4-6 students), with a graduate teaching assistant leading them through the practical exercises. Students will also have the opportunity to learn about the legal proceedings in a criminal case, with one session held in a mock courtroom on campus and led by an MSU law professor. The week will end with students testifying to some of their laboratory findings.

Some highlights of previous practical exercises include: documenting, photographing, and collecting evidence from mock crime scenes; performing a biological profile to determine age and sex of skeletal remains; reconstructing a shooting scene using projection rods and laser light to determine the direction of the shots; analyzing white powder samples for the presence of pharmaceutical drugs; comparing glass, fibers, and hair from a crime scene to identify a suspect; casting shoe and tire impressions for comparison with known shoes; and observing an autopsy performed on a euthanized pig by a practicing forensic pathologist.

MSU professors and forensic experts are also on hand during the laboratory exercises to offer assistance. Throughout the week, students will also learn academic requirements and career pathways for forensics scientists by speaking with graduate students, MSU professors, and forensic experts in an informal setting.

**Professional Instructors**

We are very fortunate that the professional forensic community values our young students and future forensic scientists and researchers. Past instructors have included professors from Michigan State University, forensic scientists from private laboratories, forensic consultants, researchers and educators, and a forensic pathologist. We also have several MSU student assistants who will work with the students each day. The student assistants are graduate students in the Forensic Science Program at MSU. We have a vast array of expertise and experience to introduce the subdisciplines of forensic science to the students.

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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**
On the banks of the Red Cedar, 
There's a school that's known to all; 
Its specialty is winning, 
And those Spartans play good ball; 
Spartan teams are never beaten, 
All through the game they fight; 
Fight for the only colors: 
Green and White. 

Go right through for MSU, 
Watch the points keep growing, 
Spartan teams are bound to win, 
They're fighting with a vim! 

Rah! Rah! Rah!

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FUTURE DOCS

Future Doctors of Osteopathic Medicine
Grades 7-9 • June 24 – 29, 2018

Future Docs-GATE is a one-week summer commuter or residential program 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 2017-2018 school year.

Important Dates for Future DOcs

Application Deadline: May 2, 2018

Class Schedule
June 24, 2018
1:00 - 2:30 pm - Check-in at residential hall
3:00 - 4:00 pm - Orientation for parents and students (including commuter)

June 25 - 29, 2018
Classes held Monday – Friday, 9 am – 5 pm
Lunch included for all students (including commuter)
Extended day is available for commuter students at an additional cost.

June 29, 2018
Check-Out and Closing Ceremony will occur on Friday, June 29, 2018 around 5:00 pm

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 participants, 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.

DOs, 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 & pants)
- Breakfast and lunch provided Monday – Friday
- Doctor kit

For residential students, all meals are provided for the duration of camp. Residential tuition also covers the cost of dorm housing, 24/7 supervision, and evening activities.
### Future DOcs Sample 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 - 12:00pm</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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**WE CREATE THE NEXT GENERATION OF INNOVATIVE THINKERS AND LEADERS**

**HOW IT WORKS:**

Students work together in teams of 2-7 members to develop a creative solution to a complex challenge. Working together over the course of a multi-month season, students develop innovative thinking strategies, creative problem-solving abilities, and vital 21st Century Skills.

Teams create a Challenge Presentation, which is a short performance that they will showcase at the local tournament. The team’s presentation components are all team-created; from the costumes to the props to the script, and everything in between!
MST
Math, Science, and Technology (MST@MSU)
Grades 7-8 • July 8 – 13, 2018

The Mathematics, Science, and Technology (MST) program at Michigan State University is a one-week summer commuter or residential program for academically talented students who are currently in grade 7 or 8 during the 2017-2018 school year. To sign up for the residential option, students must be a minimum age of 12 years old.

Important Dates for MST

Application Deadline: May 2, 2018

Class Schedule
July 8, 2018
1:00 - 2:30 pm - Check-in at residential hall
3:00 - 4:00 pm - Orientation for parents and students (including commuter)

July 9 - 13, 2018
Classes held Monday – Friday, 9 am – 5 pm
Lunch included for all students (including commuter)
Extended day is available for commuter students at an additional cost.

June 13, 2018
Check-Out and Closing Ceremony will occur on
Friday, July 13, 2018 around 5:00 pm
(all students and parents)

For information about MST program eligibility, see GATE Program Requirements on page 4 of this catalog.
For information about costs and payment, see Costs and Payment on page 10.

A note about MST: In previous years, MST@MSU was a two-week program, but it is now a one-week program for 7th-8th grade students only. We have modified the structure of our programs to better serve different grade levels. MST@MSU 7-8 will have the same opportunities to take advanced STEM curriculum in the form of two classes and one workshop, but will be only one week long. You can look forward to having a two-week experience in the MSTL program – Math, Science, Technology, and Leadership – which is for 9th and 10th grade students only. See the MSTL section for a full description.

The program is held at the MSU campus and offers a variety of topics within mathematics, science, and technology, focusing real-world applications in these areas. The goal is to match the intellectual abilities of talented students with rigorous and challenging course work, which provides enrichment but does not duplicate or accelerate course work that is part of the regular middle school curriculum. Students will participate in two classes and one workshop. See descriptions on the following pages. Students will be asked to rank their preference of topics.

The daily class schedule will be the same as the MSTL program, and a schedule can be found on page 34.

What your Tuition Payment Covers
- Instructional materials, class activities, field trips
- GATE T-shirt and water bottle
- For commuter students, lunch is provided Monday – Friday.
- Residential tuition covers: all meals during camp, housing in a dorm, 24/7 supervision, and evening activities.

MST CLASS OFFERINGS
MST class and workshop choices are subject to change or cancellation at the discretion of the GATE office, and such changes do not warrant refunds or withdrawals. We cannot guarantee placement in any of the courses offered.
3D Animation: Concepts

Do you want to learn what it takes to create animations such as the characters in blockbuster animated films such as Monsters Inc., Kung Fu Panda, and Frozen? This class will introduce you the computer software and process used to make animations come to life!

Animation was born when people such as Eadweard Muybridge and J. Stuart Blackton imitated motion with photographs and drawings. Now, over 100 years after this breakthrough, some of the most advanced computer systems in the world are dedicated to bringing fantastical animated worlds to life in modern films and videogames.

In the 3D Animation: Concepts class, students will learn about the concepts and techniques used in professional animation studios. They will use the same tools as the pros (such as Cinema4D) to learn about drawing, digital sculpting, modeling, lighting, animation, and more. At the end of the class, students will have a basic understanding of 3D animation and will have produced 3-4 simple 3D compositions. Hands-on experiences will include:

- Use 3D sculpting for organic modeling and hard-surface modeling for geometric shapes
- Observe motion and weight and translate those feelings to animation
- Light, shade, and texture 3D models, and use key frames and curves to animate the model

Biotechnology: From Genes to Genomes

Did you know that except for identical twins, no two people in the world are genetically alike? About 99.9 percent of the DNA of every person on the planet is exactly the same. It is the 0.1 percent of different DNA that makes us all unique. DNA is your body’s blueprint, and it can be manipulated for practical applications in the field of biotechnology.

For example, DNA “fingerprints” obtained by analysis of tissue or body fluids found at crime scenes can provide definitive evidence that a suspect is guilty or not. DNA technology can also be used to improve crops, to determine if a person has the genetic information for certain diseases before symptoms appear, and to do research on treatments and cures for genetic diseases. Anthropologists use DNA identification techniques to trace human origins and migrations.

In this class, students will prepare a DNA fingerprint using restriction enzymes and gel electrophoresis to solve a simulated crime scene investigation. Students will also genetically transform E.coli bacteria with a gene from a bioluminescent jellyfish and observe how the genetically engineered bacteria glow under UV light. Other activities will include:

- Assemble a model of DNA
- Extract DNA from their own saliva and make a DNA necklace
- Tour the MSU gene sequencing facility

Chemistry: Exploring our Atomic World

Chemistry is everywhere in the world around you. It’s in the food you eat, clothes you wear, water you drink, medicines you take, and the air we breathe.

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:

- Using liquid nitrogen to flash freeze “Dippin’ Dots”
- Chemically separating water into hydrogen gas and oxygen gas using electrolysis
- Building a working wet cell battery

Competitive Math: The Theoretical, the Conceptual, and the Intellectual

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

This Competitive Math course will help students develop strategies to solve 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 the ability to employ problem-solving strategies. Students will be challenged with exposure to mathematical concepts that might not otherwise be encountered in the public schools. This course aims to foster enjoyment in mental math and other intellectual activities. Mathmatial concepts covered will include:

- Linear equations (intermediate to competitive word problems)
- Proportions (direct and inverse variation, manipulating proportions, conversion factors)
- Using Integers (number bases, divisibility tricks, primes, uncommon factors)
JA Titan®: Business Strategy

MSU GATE is partnering with Junior Achievement to challenge students to learn economic and business concepts and apply their knowledge as they compete in an online simulation in the highly competitive industry of the fictional Holo-Generator. In the simulation, students become familiar with what it takes to be a leader and decision-maker in a business. Student will make decisions about price, production, marketing, capital investment, and research and development. The impacts of their decisions will lead to the success or failure of their Holo-Generator company. Through a variety of economic scenarios, students will learn how key business decisions affect a company’s bottom line.

All JA programs correlate to state standards in social studies, English, and mathematics, and to Common Core State Standards. Hands-on experiences will include:

- Designing a research and development plan for their business.
- Learning methods to make capital investment decisions, how to promote new growth in their businesses through capital investment, and why businesses choose to make charitable giving decisions.
- Using what they have learned about price, production, research and development, marketing, capital investment, and charitable giving to make business decisions using the JA Titan computer simulation.

Python: Computer Programming Made Easy

Computer programming is a fascinating and lucrative field of study that many students find intimidating at first—but don’t let that stop you from trying out a new skill. This class will introduce the basic skills of programming in one of the most versatile and learnable programming languages: Python. Python’s core philosophy includes concepts like: Beautiful is better than ugly, simple is better than complex, complex is better than complicated, and readability counts. Students will build programs that can encrypt sensitive information using data structures (lists) to hold secrets and loops for repetition (Cesarean Cipher). Topics covered will include:

- Introductions to variables, strings, and conditionals
- Building larger programs with functions, cracking secret messages
- Encryption and randomization
- Complex ciphers and the Enigma Machine

MST WORKSHOP OFFERINGS

Archery

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 those 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 archers fundamentals and drills to strengthen the archer’s confidence and increase 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. (Please note: All necessary equipment will be provided.)
Astronomy

From our neighbors in the solar system to clusters of galaxies and beyond, the field of astronomy studies all things in the cosmos. In this course, students will discover the universe on all its scales. Students will begin by exploring our solar system, and learn the different life cycles of stars and their effects on our whole galaxy. Together they will examine the largest structures in our universe, and use light as a time machine to explore the signals we get from the beginning of the universe itself.

The course will not only review insightful information about our universe, but teach students how to be effective scientists as well. Both communication and collaboration amongst groups will be highlighted as the students (AKA our scientific community) embark on a journey to return rockets from the Moon back to earth and to create the largest structure in the universe—the cosmic web. Additional class experiences will include:

- Use computer simulation to model the Earth, Sun, and Moon in orbit
- Follow your own star from birth to death
- Perform your own “galaxy census” of the universe

Composing Electronic Music

Even if you can’t read music and have never played an instrument, you can use technology to write electronic music. In this class, you will learn how to make recordings and transform them into music and sound art through the use of a digital audio workstation. You will learn the language of music and delve into the surprising ways math and science assist us in pondering and creating sound.

In this workshop, students will explore multiple methods of creating sound with the help of technology: computers, iPads, and phones synthesizers, sound editors, keyboards, controller pads, and so on. No previous musical experience is required; however, all forms of previous musical experience are welcome! Students will:

- Learn how sound is represented on computers and how to manipulate sound
- Use musical software to record and transform samples, and synthesize unique sound timbres
- Compose various short musical pieces using a variety of technological approaches

Creative Writing:
The Mysteries of Plotting

What does Hogwarts have in common with forensic science? What do zombie apocalypses have to do with dopplegangers or time travel? Why is mystery mysterious? These kinds of stories are fun to read, watch, and write, but how do writers make the stories feel real?

This workshop explores storytelling and creative writing, through the lens of mystery. In this space, we’ll create, share, and perform the mysterious stories that we imagine, using characters and worlds that we build and create to bring our ideas to life. Our instructors will show students how varied interests including those in science and technology can help them to realize realistic characters and create compelling mysteries.

In this workshop, we will look for inspiration particularly in science and technology to create something new and exciting in the arts. We’ll map out richly imagined worlds and universes, and design heroes and monsters to fill them. Once we’ve invented our settings and characters, we’ll write and share flash fiction and short stories about them.

Debate

Debate allows students to become more proficient in speaking as well as research, comprehension, writing, and reasoning skills. Fact-filled and passionate debates provide the incentive for students of all academic and socioeconomic levels to express their opinions assertively in a respectful manner on a relevant issue or topic. Using the high school policy debate topic, students will be introduced to skills fundamental to understanding argumentation, debate, and public speaking. Debate has been shown to facilitate a number of beneficial skills, including promoting rigorous and critical thinking, more effective communication skills, and improving academic, occupational, and civic achievement.

MST’s Debate workshop will cover more complex debate theories such as debate mechanics, reasoning, clash, research, and presentation. Students will also learn about flow and evidence credibility as well as the Toulmin Model of Argument (data, claim, warrants, qualifiers, rebuttals, and backing). Experiences will include:

- Debate preparation and practice on 2-person teams
- Debate “games”
- Participating in judged debates

Visual Arts

This workshop is specifically designed for students who would like to create something beautiful but don’t know where to start. The end result will be several unique, creative, and fun pieces of art that you can be proud of. Talent and experience are not a prerequisite for this workshop - success on these projects will depend on your ability to follow directions, work hard, and use your imagination. Students can expect to try something new and to draw in a way unlike the ways they may have tried before.

We will explore a variety of mediums and complete as many projects as time allows. We will get a little messy, especially on the days we do clay (so don’t wear your best clothes). We will also work outside a little, weather permitting. We hope to introduce each of you to new ways of thinking about and looking at the world around you and equipping you with the materials and skills to act on your inspirations through art.
MSTL
Math, Science, Technology, and Leadership (MSTL@MSU)
Grades 9-10 • July 8-20, 2018
The Mathematics, Science, Technology, and Leadership (MSTL) program at Michigan State University is a two-week summer commuter or residential program for academically talented students who are currently in grades 9 or 10 during the 2017-2018 school year.

Important Dates for MSTL

Application Deadline: May 2, 2018

Class Schedule
July 8, 2018
1:00 - 2:30 pm - Check-in at residential hall
3:00 - 4:00 pm - Orientation for parents and students (including commuter)

July 9 - 13 and 16 - 20, 2018
Classes held Monday – Friday, 9 am – 5 pm
Lunch included for all students (including commuter)
Extended day is available for commuter students at an additional cost.

July 14-15, 2018
Weekend activities for residential students only

July 20, 2018
Check-Out and Closing Ceremony will occur on Friday, July 20, 2018 around 5:00 pm
(all students and parents)

For information about MSTL program eligibility, see GATE Program Requirements on page 4 of this catalog.
For information about costs and payment, see Costs and Payment on page 10.

The MSTL program offers advanced curriculum in STEM areas, as well as a leadership workshop. Students will take two STEM-based classes that have been designed to stimulate students to learn about new developments in mathematics, science, and technology, and to explore related career fields. Students will also take one leadership workshop which will introduce them to concepts and skills required to be a leader in STEM fields. See class and workshop descriptions on the following pages. Students will be asked to rank their preference of topics.

What your Tuition Payment Covers
• Instruction in two intensive STEM classes and one leadership workshop
• Instructional materials, class activities, field trips
• GATE T-shirt and water bottle
• For commuter students, lunch is provided Monday – Friday.
• Residential tuition covers: all meals during camp, housing in a dorm, 24/7 supervision, and evening activities.

MSTL CLASS OFFERINGS
MSTL class and workshop choices are subject to change or cancellation at the discretion of the GATE office, and such changes do not warrant refunds or withdrawals. We cannot guarantee placement in any of the courses offered.

Daily Schedule

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

*Parents cannot pick-up commuter students between 5:30 pm and 6:15 pm. Parents must adhere to pick-up time frames listed above.
3D Animation: Applied

Have you ever dreamed of creating your own worlds, characters, creatures, and stories like the ones in blockbuster animated films such as Monsters Inc., Kung Fu Panda, and Frozen? With 3D animation, anything you imagine can happen!

Animation was born when people such as Eadweard Muybridge and J. Stuart Blackton imitated motion with photographs and drawings. Now, over 100 years after this breakthrough, some of the most advanced computer systems in the world are dedicated to bringing fantastical animated worlds to life in modern films and videogames.

In the 3D Animation class, students will learn about the concepts and techniques used in professional animation studios. Students will collaborate to pitch ideas, designs, and stories and learn how to give and receive creative critique. They will use the same tools as the pros (such as Cinema4D) to bring their ideas to life through drawing, digital sculpting, modeling, lighting, animation, and more.

Students will gain an understanding of the 3D animation pipeline process and will produce an animation or digital composition. Hands-on experiences will include:

- Use 3D sculpting for organic modeling and hard-surface modeling for geometric shapes
- Observe motion and weight and translate those feelings to animation
- Light, shade, and texture 3D models, and use key frames and curves to animate the model

Biomath

How do researchers collect data and analyze it to understand and solve problems?

Explore the math behind biology! This class will delve into scientific, mathematical, and statistical data as it relates to modern day challenges such as: HIV/AIDS, cancer, vaccinations, and infectious diseases. Students will also discover how researchers use math to analyze natural phenomena in areas such as ecological science, climate change, human anatomy, and physiology. A variety of mathematical problems will expose students to multiple types of data collection methods. Students will use mathematical skills to derive equations and analyze data such as graphs and tables. If you have a graphing calculator, bring it with you.

Some of the topics students will work on are: The coding function of DNA, bacteria population, fish growth, Giardia lamblia growth, and why the dodo is extinct. Student will also work on modeling the dynamics of viral infections, which is an introduction to calculus.

The Evolution of the Information Ecosystem

What is “fake news”? Why does it matter that so many people get their news from social media? How can we evaluate the quality of an Internet source? What is the difference between fake news and a hoax? What is an information ecosystem, and why is it important to understand?

This class takes information literacy as its focus and attempts to answer the above questions. Over the course of the program, we will explore the process of information creation and consumption, as well as the evolution of media technology. Additionally, we will find primary media artifacts from different generations and explore how conversations have evolved over time and through different technologies—from pen and pencil, to microfilm, to the internet. Our process will include daily blogging, and as a final, collaborative project, we will make a fully functional website that reports our findings.

The Fascinating Field of Physics

What do fidget spinners, LEDs, and lasers have in common? They can all be understood with physics! Our everyday experience includes 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 class, students will study four areas of physics: mechanics (freefall and rotational motion), electricity (voltage, current, resistance), waves (sound and light waves), and nuclear physics. Students will be challenged by studying areas of physics that go beyond high school science curriculum.

Students will have the opportunity to observe and participate in numerous illuminating and mind-boggling demonstrations that are 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. Students will develop team-building and leadership skills as they work together in labs. Students will complete the following objectives:

- Apply mathematics and use instruments and technology to solve problems in physics and develop a deeper understanding of physics principles.
- Learn how uncertainty and variability in measurements and experimental results affect scientists’ interpretation and analysis of data.
- Design, conduct, and present the results of their own experiment using MSU Physics lab equipment.
Infographics

Infographics, short for information graphics, are graphic visual representations of information, data, or knowledge intended to present information quickly and clearly. In this class, you will create a content-rich infographic on a science or technology topic of your choice using Adobe Illustrator®. We will also explore some free and inexpensive online tools for making various infographics. For your infographic project, you might choose to create a visual representation of data to explain a business trend or environmental issue, or even to present a theme or development from your personal life. Your finished infographic will engage your target audience and convey information clearly through effective use of design elements such as typography, color, and structure. Students will Learn:

- How to draw illustrations, maps, and charts in Adobe Illustrator®
- Techniques for spotting stories in data
- Six valuable steps for planning an effective infographic
- How to effectively design a good infographic

Mechatronics and Robotics

Students will learn the foundational skills of both mechatronics and robotics in this course. Mechatronics focuses on a blend of mechanical engineering (the design, construction, and use of machines), electrical engineering (the technology of electricity), computer control, and information technology, making it an ideal pairing with robotics.

MSTL's Mechatronics & Robotics course will consist of learning basic circuits, prototyping using breadboards, and applying concepts from electrical engineering. Students will also be exposed to concepts in physics such as Ohm's Law, and Kirchhoff's Voltage Law (KVL).

Students will design, build, code, and test different circuits such as LED, pull-up, pull-down, RC, and QT circuits. Additionally, they will be introduced to PBASIC, a BASIC variant computer language, and the BASIC STAMP2 microcontroller. The class will culminate in a ROBOT WAR competition. In week 2 of the class, students will apply the skills they learned in week 1 to:

- Design and build a robotic arm using a Standard Servo
- Design and build a rover using Continuous Servos
- Participate in a robot war competition against classmates

Microbiology and Plant-Microbe Interactions

Did you know that microbes are everywhere, including all over plants? In fact, just like in humans, certain microbes can help plants be healthy and grow. Making crop plants more healthy and productive is important for sustaining the world’s population of 7.6 billion people, and for planning for future population growth. One group of microbes that loves living on plants is the methylotrophs, and interestingly these bacteria can grow using rare earth elements (REE), which are ingredients in chemical fertilizers in some countries. The goal of this class is to investigate: How do these microbes and elements interact within each other and with plants to enhance plant growth?

Over two weeks, our future microbiologists will learn about plant-microbe interactions, methylotrophic metabolism, and the role of REE in microbiology, all while conducting their own research experiment. They will learn fundamental scientific concepts such as hypothesis creation and testing, data generation and analysis, and data presentation. Most importantly, students will not just learn about microbiology as a science, they will be a scientist. In hands-on activities, students will:

- Culture bacteria in the lab and compare growth among bacteria using a growth curve
- Isolate bacteria from plants and soil, and then discover the bacteria’s identity with 16s ribosomal RNA sequencing.
- Cultivate your own plants using microbes and lanthanides to enhance plant growth.

Nuclear Astrophysics

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, will introduce you to the world of nuclei in deep space. Topics include:

- A tour of NSCL’s rare isotope research areas
- The interaction of light and matter, spectral analysis
- Classification of stars and stellar evolution
- Nucleosynthesis (the construction of new elements)
- Particle detection experiment

MSTL LEADERSHIP WORKSHOPS

Civic Leadership and Service-Learning

With rising interest in career paths in science, technology, engineering, and mathematics (STEM), institutions are seeking talented individuals who possess strong analytical, communicative, entrepreneurial, and critical thinking skills to contribute meaningfully to the institution. In today’s global economy, there is a growing need for well-informed leaders to
recognize and solve complex problems; establish and maintain flourishing relationships; produce innovative and effective products and services; identify conflicts and bring them to a resolution; and cultivate diversity, inclusion, and equity. For these reasons, the activities presented in this class will assist students with developing an understanding and familiarity with various personal and leadership development strategies intended to strengthen skills in civic engagement, deep reflection, active listening, co-creative and transformative learning, capacity building, forming partnerships and networks, and program/project planning and outreach. More specifically, the program focuses on providing students with an understanding of ethical leadership, effective communication, relationship building, grassroots organizing, advocacy, and conflict resolution strategies. Class objectives include:

- Examine the concepts of civic leadership and service learning
- Design a civic engagement initiative to address a pressing need in the local community
- Evaluate current trends in civic engagement research and practice

**Entrepreneurial Leadership**

What does it take to be an entrepreneur? This introductory business course covers the basics of planning and launching your own successful business! The curriculum is guided by the entrepreneurial experiences of successful business owners. Whether students want to start their own moneymaking business or create a non-profit to help others, this course helps students develop the core skills they need to be successful. Students will learn strategies for brainstorming new business ideas, attracting investors, marketing their business, and managing expenses. Students will discuss inspirational stories of teen and adult entrepreneurs who have turned their ideas into reality, and gain insight from these case studies before beginning their own business plan.

Building a business requires knowledge in many different areas such as production, finance, marketing, and customer service. In addition, leaders of entrepreneurial endeavors have to be aware of issues such as ethical behavior, social responsibility, and legal issues. Through covering these areas and exploring the personal skills and other factors that contribute to small business success and failure, students will be well on their way to developing their own entrepreneurial ideas into a business!

**Global Citizenship**

Through dialog, debate, presentations, and speeches, students will engage in issues relevant to the world around them. Students will develop and practice leadership skills, make a commitment to diversity, and participate in a group project that highlights some of the top challenges we all face and come up with possible solutions.

Topics will include: Income inequality, making a difference in your community and around the world, how to prepare for technological changes even when we don’t even know what they’ll be, what happens when we separate ourselves from the world, and the effects of climate change.

This workshop will instruct participants on how the issues facing society become more and more interlinked, and how it will be more important than ever for all of us to collaborate to create a future in which we can all live.

**Leadership and Economic Impact**

Globalization and disruptive technologies are changing the nature of work. Industry and sector trends tell us work and jobs will be drastically different in the next 10-20 years. What skills will be required for the jobs of the future? If futurists are right and human jobs are disappearing, what will humans do with all of their time? How will they survive? What will happen to less skilled workers? What socioeconomic issues may result?

At the same time that technology is taking over from our grocery stores to our highways, the US is becoming increasingly a more and more diverse country. Considering our current leadership (Federal and State) and its impact on the US economy and workforce, students will develop a concept paper that will describe the issues as they pertain to the economy and workforce. Students will invent new and innovative tools, policies, and practices that could address socioeconomic and workforce issues for humans in the future.

**Rhetoric and Sociocultural Movements**

Rhetoric. What does that really mean? Why does the media often use the word rhetoric with distain? What is rhetoric, beyond the appeals of ethos, pathos, and logos most often discussed in high schools and college level philosophy classes?

In this leadership workshop, students will investigate the answers to these questions with a shared purpose: to learn how to analyze the world around them more rhetorically. In this process, students will engage in activities to examine and to discuss the world and its complexities around them through various rhetorical lenses. Projects will include examining current events and the ways in which the social and cultural contexts create exigencies for informal discussions and formal arguments.
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 need advanced coursework to remain challenged; they can continue their advanced learning by taking an appropriate level college class while still enrolled in high school.

For tuition costs, application and enrollment deadlines, and other information please visit: gifted.msu.edu/programs/dual-enrollment

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.

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.

WRA 101 • Writing as Inquiry - 4 credits
Description: The study and practice of invention, arrangement, revision, style, and delivery to help students make successful transitions to writing, reading, and researching in higher education.

Join us and explore the Human BRAIN

Brain Bee at MSU
Sunday, February 4, 2018 • 12:30 PM
An exciting, live Q&A competition for highschool students.

Neuroscience Fair
Saturday, March 24, 2018 • 12 - 4 PM
Experience neuroscience firsthand at this free event with fun activities for all ages.

neuroscience.natsci.msu.edu/outreach
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.

**STEAM Geekend Camp**

**Spring 2018**

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.

**Wilson Talent Center Summer Camps**

**Summer 2018**

The Wilson Talent Center 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 9 – 20, 2018**

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. Students focus on inquiry-based experiences with hands-on and applied learning.

**Cost:** $290 (partial/full scholarships may be available based on need).

**Mathematics Augmentation Series:**

**Cultivating Optimum Teaching (MASCOT)**

**July 9 – 20, 2018**

For students who have completed grades 6 or 7

MASCOT is a two-week program designed to serve students who have been identified as having a high potential for learning advanced mathematics. 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).

For dates, more information, or to apply visit inghamisd.org
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
Gifted and Talented Education
University Outreach and Engagement
Kellogg Center
219 S. Harrison Rd., Rm 8
East Lansing, MI 48824

FOR MORE INFORMATION ON ANY OF OUR PROGRAMS, PLEASE VISIT
GIFTED.MSU.EDU

From elementary to high school, spend your educational journey with GATE!