Table of Contents

About the Hoosier STEM Academy .................................................................................................................. 2

Application Process ........................................................................................................................................... 3
  Before You Apply ......................................................................................................................................... 3
  Step 1: Complete the Application .................................................................................................................. 4
  Step 2: Register for Course(s) ......................................................................................................................... 4
  Tuition and Fees ............................................................................................................................................... 5
  Questions ....................................................................................................................................................... 5

Ball State University Courses ............................................................................................................................ 6
  Biology .......................................................................................................................................................... 6
    BIO 628- Readings in Biology ...................................................................................................................... 6
    BIO 629 Seminar in Biology ........................................................................................................................ 6
  Chemistry ..................................................................................................................................................... 7
    CHEM 500- Chemical Communications ..................................................................................................... 8
    CHEM 575 - Exploration of Selected Topics in Chemistry ......................................................................... 8
    CHEM 670 –Research in Chemistry ............................................................................................................ 8
    CHEM 673- Seminar in Chemistry ............................................................................................................ 8
    CHEM 675- Advanced Topics in Chemistry .............................................................................................. 8
  Mathematics ................................................................................................................................................ 9
    MATH 511- Abstract Algebra I .................................................................................................................... 10
    MATH 545- Differential Geometry .............................................................................................................. 11
    MATH 560- History of Mathematics ........................................................................................................... 11
    MATH 571- Real Analysis I ......................................................................................................................... 11
    MATH 614- Algebraic Reasoning ................................................................................................................ 11
    MATH 615- Number Concepts and Number Theory .................................................................................. 11
    MATH 620- Probability and Random Variables ......................................................................................... 12
    MATH 680- Special Studies in the Teaching of Mathematics .................................................................... 12
    MATH 694- Research Methods in Mathematics Education ....................................................................... 12
  Natural Resources and Environmental Management ...................................................................................... 12
    NREM 608- Research Methodologies in Natural Resources and Environmental Sciences .................. 13
    NREM 669- Advanced Professional Practice ............................................................................................. 13
  Physics ......................................................................................................................................................... 13
    PHYC 671- Classical Mechanics .............................................................................................................. 13
    PHYSICS 683- Seminar in Physics .......................................................................................................... 14
    PHYSICS 685- Special Topics in Physics: Video Analysis Investigations of Force and Motion ............ 14
  Technology Education ................................................................................................................................. 14
    TEDU 695- Curriculum Evaluation in Technical Education .................................................................... 14

About the Hoosier STEM Academy

The Hoosier STEM Academy is a partnership among Ball State University, IUPUI, and Purdue University to provide graduate-level STEM courses for current Indiana STEM
teachers who wish to be credentialed to teach dual credit courses. Courses are designed specifically to meet the needs of Indiana high school teachers, including courses that use online, blended, and/or distance education instructional designs, as well as traditional face-to-face options. STEM teachers who wish to participate must currently teach in underserved Indiana school corporations and Indiana schools experiencing a shortage of qualified STEM teachers. Participants will also be invited to participate in the Hoosier STEM Academy Mentoring Conference. Upon completion of a course with a grade of C or higher, participants will receive a $1,375 stipend to help cover the cost of tuition, fees, and/or materials.

The Hoosier STEM Academy is now launching the Fall 2020 course catalog. Instructions for how to apply and register for courses at each of the partner institutions follow the list of offerings. Be sure to read carefully as each campus may have slightly different procedures at this time. Participants may take up to two courses per semester, but may only take a total of 15 hours over the four program semesters. Because graduate courses are challenging, it is suggested that participants take only one course per semester during the academic year.

Note: Any participant who registers for a course through the Hoosier STEM Academy is responsible for checking with their dual credit provider institution that the course will count toward the dual credit credentials.

Application Process

Before You Apply
Students who wish to enroll in one or more courses as a Non-degree Seeking Graduate Student must meet the following admission criteria:

1. Hold an earned bachelor’s degree from a college or university that is accredited by its regional accrediting association.
2. Satisfy one of the following:
   a. An undergraduate cumulative grade point average (GPA) of at least 2.75 on a 4.0 scale (all undergraduate coursework, including work completed prior to the baccalaureate degree, is used to calculate the GPA).
   b. A cumulative GPA of at least 3.0 on a 4.0 scale in the latter half of the baccalaureate.*

   *
**Step 1: Complete the Application**

1. Find information about applying at:
   http://cms.bsu.edu/academics/collegesanddepartments/gradschool/admissions/application-process
2. Read the information, and then click the “apply now” box. (or go to:
   https://www.applyweb.com/bsug/index.ftl)
   a. When completing the application, apply as a “non-degree seeking student”
   b. When prompted, choose the “fee waiver” option at the end of the application process and select the “Con Selmer” fee waiver
   c. Add the following in the comments field: “Applying as part of the consortium teacher’s grant for dual-credit licensure; please waive my application fee.”
3. Follow the instructions for submitting your transcripts
4. Ask your school principal to send a letter confirming that your school is considered underserved and/or is experiencing a shortage of STEM teachers; send letters via email to: Dr. Jill Bradley-Levine, jsbradleylev@bsu.edu
5. In order for applications to be processed and students to register for courses on time. The Graduate School must receive all of your application materials in a timely manner.

**Step 2: Register for Course(s)**

1. Find information about registering for classes at:
   http://cms.bsu.edu/academics/advising/scheduling/course-registration
2. Use the username and password you were sent by the Graduate School to log into my.bsu.edu (Graduate Students taking online or on-campus classes will receive a username and password (credentials) from the Graduate School within 4-7 days after acceptance. This will be sent to the email address you provided on the graduate application.)
3. Follow steps on the website above to search for and register for a course.
4. Upon registration, students will receive access to their student account and Blackboard online course portal.
* Nondegree students who later apply to a degree program must meet all entrance requirements of that program and must have maintained at least a 3.0 GPA in their nondegree coursework. No more than 9 hours earned in nondegree status may be applied to an advanced degree program if the person is later admitted as a degree-seeking student. The department in which the student is studying and the dean of the Graduate School will determine which credit hours earned in nondegree status will apply to a degree program. Credit hours must have been completed within the six-year time limit allowed for completion of a master’s degree.

**Tuition and Fees**

- Tuition and the technology fee for a 3-hour **online course** will be $1,316 ($402/credit hour + $110 technology fee; students taking more than 7 credit hours pay $168 technology fee)
- Tuition and the technology fee for a 3-hour **on-campus course** will be $1,783 ($402/credit hour + $110 technology fee, $277 student services fee, $53 recreation fee, and $45 transportation fee)
- Lists of required textbooks are available through the Ball State Bookstore; you may purchase or rent texts through the Bookstore: [http://bsu.bncollege.com/](http://bsu.bncollege.com/) or through other online book sites.
- **Upon completion of a course with a grade of C or better, the HoosierSTEM Academy will send a stipend of $1,375 to each participant.**
- Also upon completion of a course, students may obtain an official transcript with the course and grade. Official electronic transcripts are $12; instructions are available here: [http://cms.bsu.edu/about/administrativeoffices/registrar/transcripts/](http://cms.bsu.edu/about/administrativeoffices/registrar/transcripts/)

**Questions**
Please contact Kizmin M. Jones with questions: kmjones4@bsu.edu
### Ball State University Courses

#### Biology

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**BIO 628- Readings in Biology**
Directed readings for majors in biology. Individualized program of readings developed under the supervision of a faculty member. Prerequisite: permission of the department chairperson. A total of 6 credits may be earned.
1.000 TO 6.000 Credit hours

**BIO 629 Seminar in Biology**
Review and discussion of the literature related to selected topics of current interest in biological research. Prerequisite: permission of the department chairperson. A total of 2 credits may be earned toward a Master's degree and a total of 10 credits may be earned toward a doctoral degree, but no more than 1 in any one semester or term.
1.000 TO 10.000 Credit hours
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</table>
**CHEM 500- Chemical Communications**  
Use of scientific literature, sources, and classification systems, and current and retrospective searches in the specialized branches of chemistry. 
Prerequisite: 20 credits of chemistry or permission of the department chairperson. Not open to students who have credit in CHEM 400.  
1.000 Credit hours

**CHEM 575 - Exploration of Selected Topics in Chemistry**  
Discussion or written reports or both in advanced special topics in related to chemistry. Examples are topics in neurochemistry, physical organic, chemical synthesis, kinetics, spectroscopy, etc. Prerequisite: permission of the department chairperson. A total of 6 credits may be earned, but no more than 3 in any one semester or term.  
1.000 TO 3.000 Credit hours

**CHEM 670 - Research in Chemistry**  
Original work at the molecular level on projects based in the current scientific literature. The projects will be directed by graduate faculty and will typically involve aspects of ongoing research. Prerequisite: permission of the department chairperson. A total of 9 credits may be earned.  
1.000 TO 9.000 Credit hours

**CHEM 673- Seminar in Chemistry**  
Critical examination and discussion of recent experimental and theoretical developments in chemistry. Prerequisite: CHEM 400 or 500; permission of the department chairperson. A total of 4 credits may be earned, but no more than 1 in any one semester or term.  
1.000 Credit hours

**CHEM 675- Advanced Topics in Chemistry**  
Discussion, experimentation, or both in specialized topics for the qualified advanced student. Information concerning specific topics offered during a given semester may be obtained from the departmental office. Lecture and laboratory schedules appropriate to the topics offered. Prerequisite: permission of the department chairperson. A total of 9 credits may be earned.  
1.000 TO 9.000 Credit hours
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</table>
### MATH 511 - Abstract Algebra I

The theory of groups, including subgroups, cyclic groups, normal subgroups, cosets, Lagrange's Theorem, quotient structures, homomorphism, automorphisms, group actions, Sylow's Theorems, structure of finite abelian groups, generators, and relations. Prerequisite recommended: MATH 311. Not open to students who have credit in MATH 411.

3.000 Credit hours
**MATH 545- Differential Geometry**
Fundamentals of differential geometry, as an extensive study of curves and surfaces in 3-space. Includes the use of computer visualization and emphasizes the importance of differential geometry in areas like relativity theory and modern physics. Prerequisite recommended: MATH 217, 267. Not open to students who have credit in MATH 445.
3.000 Credit hours

**MATH 560- History of Mathematics**
The development of mathematics from pre-history to the seventeenth century. Topics may include number concepts and numeration, algebra, geometry, trigonometry, analytic geometry, and calculus. Prerequisite recommended: MATH 161 or 165. Not open to students who have credit in MATH 460.
3.000 Credit hours

**MATH 571- Real Analysis I**
Real number systems: least upper bound property, Archimedean property and their consequences; Basic topology: cardinality, metric spaces, completeness, compactness, connectedness; Numerical sequences and series: convergence tests, upper-lower limits; Continuity: continuous functions, uniform continuity, Intermediate and Extreme Value Theorems; Differentiability; L'Hospital's Rule, Taylor's Theorem. Time permitting, instructors may add more material that exemplifies the above topics. Prerequisite recommended: MATH 215 and MATH 267. Not open to students who have credit in MATH 471.
3.000 Credit hours

**MATH 614- Algebraic Reasoning**
Algebra as the study of patterns, as a symbolic language, as a tool for problem solving, as the study of functions, as generalized arithmetic, and as a way of modeling physical situations. Prerequisite: at least one year of teaching experience or permission of the department chairperson.
3.000 Credit hours

**MATH 615- Number Concepts and Number Theory**
Number development, number systems, properties and characteristics of classes of numbers, number sense, number theory, operations and their relationships, and algorithms. Prerequisite: at least one year of teaching experience or permission of the department chairperson.
3.000 Credit hours

**MATH 620- Probability and Random Variables**
Probability set functions, random variables, density and distribution functions, mathematical expectations, marginal and conditional distributions, sampling distributions, and limiting distributions. The mathematical rigor requires a strong background in calculus. Prerequisite recommended: MATH 166 and 215.

4.000 Credit hours

**MATH 680- Special Studies in the Teaching of Mathematics**
The student will work under the direction of a staff member in the Department of Mathematical Sciences. Assigned reading and reports; possible class attendance in related courses. Prerequisite: permission of the department chairperson. A total of 6 credits may be earned.

1.000 TO 6.000 Credit hours

**MATH 694- Research Methods in Mathematics Education**
Research analysis and methodology in mathematics education. Prerequisite: at least one year of teaching experience, and 18 graduate credits in mathematics or mathematics education, including MATH 690, or permission of the department chairperson.

3.000 Credit hours

*Natural Resources and Environmental Management*

<table>
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**NREM 608- Research Methodologies in Natural Resources and Environmental Sciences**

Development of concepts and skills for those preparing for graduate research in natural resources and environmental sciences. Introduction to research designs, data-gathering techniques, data analysis, and research planning. Emphasizes interpreting published research and the drafting of a concise research proposal.

3.000 Credit hours

**NREM 669- Advanced Professional Practice**

Advanced supervised professional learning experiences in environmental/natural resource management, studies, or education. Students complete an independent project and present it to a professional forum. Prerequisite: permission of the department chairperson. A total of 3 credits may be earned.

1.000 TO 3.000 Credit hours

**Physics**

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**PHYC 671- Classical Mechanics**

Classical Hamiltonian mechanics as applied to particles and rigid body motion. Prerequisite: PHYC 330 or permission of the department
chairperson.
3.000 Credit hours

**PHYSICS 683- Seminar in Physics**
Critical examination and discussion of recent experimental and theoretical developments in physics. Participation in and contribution of a presentation at departmental physics colloquia are expected. A total of 4 credits may be earned.
1.000 TO 4.000 Credit hours

**PHYSICS 685- Special Topics in Physics: Video Analysis Investigations of Force and Motion**
Special activities in physics involving one or more of the following: experimental work, study of advanced topics in physics, and attendance in prescribed classes. Prerequisite: permission of the department chairperson. A total of 8 credits may be earned.
1.000 TO 8.000 Credit hours

**Technology Education**

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**TEDU 695- Curriculum Evaluation in Technical Education**
Serves diverse needs of online graduate students who are preparing to be K-12 teachers, administrators, trainers, or evaluators in technology education or career and technical education, or STEM fields (science, technology, mathematics, engineering). Students in these fields will find the references to technological literacy and technical settings to be especially informative.
3.000 Credit hours