



THE
INDIANA ACADEMY
FOR SCIENCE, MATHEMATICS, AND HUMANITIES

COURSE CATALOG 2026-2027



academy.bsu.edu/catalog

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Introduction

The Indiana Academy for Science, Mathematics, and Humanities offers a robust college-level curriculum reflecting current Indiana Academic Standards, faculty expertise, and student interest. Thus, our curriculum is subject to change as factors, both external and internal, require we revisit, update and/or revise our courses and their descriptions.

Definitions

Course Title Codes Refers to the type of course:

CL

College Level – Uses a college textbook and syllabus

DC

Dual Credit – available for post-secondary credit (see page ii)

Prerequisite refers to a course or demonstrated knowledge that is required prior to course enrollment.

Co-requisite refers to courses that are required concurrently.

Consent of Instructor refers to enrollment after review of transcripts and other relevant information by the course instructor.

Placement refers to enrollment after review of transcripts, placement exams, and other relevant information by the Director of Academic Affairs, the appropriate academic division chair, or their designees.

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DUAL CREDIT COURSES

Dual Credit Courses (designated as “DC” in the course catalog descriptions) are Indiana Academy courses taught by Academy instructors which have been recognized as equivalent to a post-secondary institution’s courses.

Important items to keep in mind

1. **Actual courses available for dual credit are subject to change. Check with the Guidance Office for the most current list of courses.**
2. Fall semester enrollment will take place early in fall. Enrollment for spring dual credit courses will start in December and finish in early January. **You must enroll during these times if you wish to receive dual credit. Our partner institutions do not allow late or retroactive enrollments.**
3. Dual credit courses indicated with an asterisk (*) are the second course in a two-semester sequence. Students must enroll in the fall semester course of the sequence in order to qualify for dual credit in the spring semester for courses with an asterisk. Students must enroll and pay another tuition fee for the second course in the sequence during the spring semester. Some courses may have prerequisite requirements. Check with the Guidance Office for an updated and complete list of all prerequisites for dual credit classes.
4. Courses with two Academy course numbers listed are the fall **and** spring semesters of the Academy class. The two semesters together are equal to one semester of the partner institution’s equivalent class. The dual credit grade is based on work from both semesters of the Academy class.

Ball State Dual Credit Courses

Students who enroll for dual credit may request a transcript from Ball State University, which can be transferred to any college or university that accepts BSU credits. Students are responsible for the special dual credit tuition fee. The tuition fee for dual credit varies according to the course. In the list below, all courses underlined will cost \$25 per college credit hour. These courses are on the state core transfer library list for automatic transfer between Indiana colleges and universities. The tuition for all courses listed in *italics* is \$250.00 per course. These courses are NOT on the core library list for automatic transfer between Indiana colleges and universities. All tuition fees are waived for students who are on free and reduced lunch. Students should check with a receiving college for their policy on the transfer of Ball State University courses. Students can also check for transfer of credits through TransferIN, <https://transferin.net/> Applications, directions for enrollment, and other information on dual credit courses can be obtained from the Guidance Office.

DUAL CREDIT COURSES (Continued)

Academy course number and title	Ball State University course	Cost
ENG103	Composition and Rhetoric	3 cr. hrs. in ENG 103 Composition and Rhetoric (<i>enroll fall</i>) \$75
ENG104	Composing Research	3 cr. hrs. in ENG 104* Composing Research (<i>enroll spring</i>) \$75
FRN1A	Beginning French 1 (Fall)	4 cr. hrs. in FR 101 Beginning French 1 (<i>enroll fall</i>) \$100
FRN1B	Beginning French 1 (Spring)	4 cr. hrs. in FR 102* Beginning French 2 (<i>enroll spring</i>) \$100
FRN2A/2B	Intermediate French 2	3 cr. hrs. in FR 201 Intermediate French 1 (<i>enroll fall</i>) \$75
GER1A	Beginning German 1 (Fall)	4 cr. hrs. in GER 101 Beginning German 1 (<i>enroll fall</i>) \$100
GER1B	Beginning German 1 (Spring)	4 cr. hrs. in GER 102* Beginning German 2 (<i>enroll spring</i>) \$100
GER2A/2B	Intermediate German 2	3 cr. hrs. in GER 201 Intermediate German 1 (<i>enroll fall</i>) \$75
GER3A/3B	Advanced German 3	3 cr. hrs. in GER 202 Intermediate German 2 (<i>enroll fall</i>) \$75
SPN2A/2B	Intermediate Spanish 2	3 cr. hrs. in SP 201 Intermediate Spanish 1 (<i>enroll fall</i>) \$75
SPN3A/3B	Advanced Spanish 3	3 cr. hrs. in SP 202 Intermediate Spanish 2 (<i>enroll fall</i>) \$75
SOC203	American History 1492-1876	3 cr. hrs. in HIST 201 U.S. History 1492-1876 (<i>enroll fall</i>) \$75
SOC204	American History 1877-Present	3 cr. hrs. in HIST 202 U.S. History 1877-Present (<i>enroll spring</i>) \$75
SOC05130	The West in the World	3 cr. hrs. in HIST 150 The West in the World (<i>enroll fall</i>) \$250
MAT04123/04124	AP Calculus AB 1, 2	4 cr. hrs. in MATH 165 Calculus 1 (<i>enroll fall</i>) \$100
MAT04133	AP Calculus BC 1	4 cr. hrs. in MATH 165 Calculus 1 (<i>enroll fall</i>) \$100
MAT04134/04134B	AP Calculus BC 2	4 cr. hrs. in MATH 166 Calculus 2 (<i>enroll semester taken</i>) \$100
MAT04514/04514B	Statistics	3 cr. hrs. in MATH 181 Elem. Prob. Stats (<i>enroll semester taken</i>) \$250
MAT04522	Discrete Mathematics	3 cr. hrs. in MATH 215 Discrete Systems (<i>enroll fall</i>) \$250
MAT04825	AP Statistics	3 cr. hrs. in MATH 181 Elem. Prob. Stats (<i>enroll spring</i>) \$250
MAT04832	Linear Algebra	4 cr. hrs. in MATH 217 Linear Algebra (<i>enroll fall</i>) \$250
MAT04833	Multivariable Calculus	4 cr. hrs. in MATH 267 Calculus 3 (<i>enroll spring</i>) \$250
MAT04834	Differential Equations	3 cr. hrs. in MATH 374 Differential Equations (<i>enroll spring</i>) \$250
CMP04511	AP Computer Science A 1	4 cr. hrs. in CS 120 Computer Science 1 (<i>enroll fall</i>) \$250
CMP04512	AP Computer Science A 2	4 cr. hrs. in CS 121* Computer Science 2 (<i>enroll spring</i>) \$250
SCI03201/03202	General Chemistry 1, 2	3 cr. hrs. in CHEM 100 People and Chemistry (<i>enroll fall</i>) \$250
SCI04204	AP Chemistry 1	4 cr. hrs. in CHEM 111 General Chemistry 1 (<i>enroll fall</i>) \$250
SCI04205	AP Chemistry 2	4 cr. hrs. in CHEM 112* General Chemistry 2 (<i>enroll spring</i>) \$250
SCI04301	AP Biology 1	4 cr. hrs. in BIO 111 Principles in Biology 1 (<i>enroll fall</i>) \$250
SCI04328	AP Environmental Science	3 cr. hrs. in NREM 101 Environment & Society (<i>enroll spring</i>) \$250
SCI03103/03103A	Physics & Astronomy: Physics	3 cr. hrs. in PHYC 100 Conceptual Physics (<i>enroll fall</i>) \$75
SCI03104/03104A	Physics & Astronomy: Solar System	3 cr. hrs. in ASTR 100 Intro Astro: Sol Sys & Bey (<i>enroll fall</i>) \$250
SCI03111/03112	AP Physics I	4 cr. hrs. in PHYC 110 General Physics 1 (<i>enroll fall</i>) \$250
SCI03113/03114	AP Physics II	4 cr. hrs. in PHYC 112* General Physics 2 (<i>enroll fall</i>) \$250
SCI04102	AP Physics C 1	5 cr. hrs. in PHYC 120 General Physics 1 (<i>enroll fall</i>) \$250
SCI04103	AP Physics C 2	5 cr. hrs. in PHYC 122* General Physics 2 (<i>enroll spring</i>) \$250
SCI04403	Astrophysics I: The Sun & Stars	3 cr. hrs. in ASTR 120 The Sun and Stars (<i>enroll fall</i>) \$250
SCI04404	Astrophysics II: Galaxies & Cosmology	3 cr. hrs. in ASTR 122* Stellar Ev, Gal, & Cosm (<i>enroll spring</i>) \$250

*Enrollment in the first course is a prerequisite for enrollment in the second course.

DUAL CREDIT COURSES (Continued)

Ivy Tech Dual Credit Courses

Students who enroll for dual credit may request a transcript from Ivy Tech, which can be transferred to any college, or university that accepts Ivy Tech credits. Tuition fees for any Dual Credit courses from Ivy Tech listed below are no charge. Students should check with a receiving college for their policy on the transfer of Ivy Tech courses. Students can also check for transfer of credits through TransferIN, <https://transferin.net/> Applications, directions for enrollment, and other information on dual credit courses can be obtained from the Guidance Office.

Academy course number and title		Ivy Tech Community College course
MAT03121/03122	AP Precalculus SL 1, 2	3 cr. hrs. in MATH 136 College Algebra (<i>enroll fall</i>)
MAT03131	AP Precalculus EL 1	3 cr. hrs. in MATH 136 College Algebra (<i>enroll fall</i>)
MAT03132	AP Precalculus EL 2	3 cr. hrs. in MATH 137 Trig w/Analytic Geometry (<i>enroll spring</i>)

What is an AP Class?

A number of Indiana Academy classes have been approved through an audit process by The College Board to use the label AP or Advanced Placement. These courses are designated as "AP" in the course catalog descriptions. Further information about the AP Program can be obtained at <http://apcentral.collegeboard.com>.

Note – sign-up for the AP exams occurs the fall for most AP courses. There is a penalty charge assessed to the student for changing their AP exam status by dropping the exam or adding the exam after the deadline. Watch for announcements on specific dates and deadlines.

AP and College Credit

Students who take an AP exam and earn a score of 3 or higher often receive college credit in that discipline towards their degree at an institution of higher education. See TransferIN, <https://transferin.net/>, for more information on how those courses transfer and what score is needed for credits.

Ball State University Courses

Substitutions

Students are expected to complete their graduation requirements by enrollment in Academy classes whenever possible. When an Academy class for a graduation requirement cannot be scheduled due to a conflict, the student may request permission to substitute the credit by auditing an appropriate Ball State University course. The Assistant Director of Academic Advising and Guidance and the Director of Academic Affairs must approve all BSU course substitutions. The audit fee and textbook fee for courses that fall in this category will be covered by the Academy.

Electives

Indiana Academy students are also provided an opportunity to apply for enrollment in elective Ball State University classes. The student may enroll for college (and Academy) credit at the full BSU tuition rate, or they may audit the course for high school credit only. The student is responsible for all fees and course expenses for BSU elective courses. See the Student Handbook for more detailed information about taking Ball State University courses.

Questions concerning enrolling in Ball State University classes or Audit Fee procedures should be directed to the Guidance Office.

Credit

The following conversion rates will be used for the purpose of converting college level credit to Indiana Academy credit:

University Credit Hours	Academy Credits
1	0.50
2	0.75
3	1.00
4	1.25
5	1.50

GRADUATION REQUIREMENTS

Academy students graduating in 2027 and 2028 are automatically set on the Core40 with Academic Honors path – the graduation requirements that have been used the past several years – and should use that table (the first one below) to determine graduation requirements.

Academy students graduating in 2029 or after will complete the Indiana Diploma with Enrollment Honors Plus Seal requirements and should use that table (the second one below) to determine their graduation requirements. Other honors seals are possible in addition to the Enrollment Honors Plus seal and students interested in any additional seals must meet with Mrs. Wright before January of their graduation year to declare that interest and plan for completion of those additional requirements.

The graduation requirements tables shown list ALL graduation requirements: both for the state and the Academy graduation requirements. Requirements specific to the Academy are listed as the bottom line in each applicable box.

Academy students graduating 2027 or 2028 can choose to switch to the new Indiana Diploma with Enrollment Honors Plus Seal if they would like. Those students must meet with Mrs. Wright prior to January of their graduation year to declare their interest in pursuing the new diploma to ensure they are on track to meet those requirements and to plan for that completion.

All Academy students can choose to pursue the Indiana College Core (ICC), a set of 30 college credits that transfers from Ball State to any public in-state institution, and even some of the private ones in Indiana. The Academy offers courses in 4 of the 6 competencies in-person, and students can take a course in each of the other 2 competencies online with Ball State Dual Credit to finish the requirements. You can learn more about the ICC here: <https://mycollegecore.org/>, and more info on our dual credits are here: <https://academy.bsu.edu/catalog/dual-credit/>.

Some state credit requirements are only met by specific courses. Computer Science, World Perspectives, World History, and Communications are examples requiring specific courses, though that is not an exhaustive list. If you have a question about your courses and if you've met specific credits, please contact your Academic Advisor or Mrs. Wright.

Academy students must maintain at least 5.5 credits per semester to be full time students.

Courses that typically meet for 150 minutes per week are worth 1 credit, 200 minutes per week are generally worth 1.25 credits, and more than that per week are worth 1.5 credits. See the course description for confirmation of credits earned for successful completion of each course.

Courses that are not taught at the Indiana Academy which would have traditionally been taken at the previous school may be taken through summer school or through other arrangements. These classes include, but are not limited to, PE, Health, and some Fine Arts. Approval for these substitutions should be arranged with the Assistant Director of Academic Advising and Guidance.

GRADUATION REQUIREMENTS (Continued)

Core40 With Academic Honors Graduation Requirements for Students

Requirements for:	Students who enter as SOPHOMORES	Students who enter as JUNIORS	Students who enter as SENIORS
Science	2 credits biology 2 credits chemistry 2 credits physics 6 cr. lab science from Academy	2 credits biology 2 credits chemistry 2 credits physics 4.5 cr. lab science from Academy	2 credits biology 2 credits chemistry 2 credits physics 1.5 cr. lab science from Academy
Math	2 credits Algebra 1/Int. Math 1 2 credits Geometry/Int. Math 2 2 credits Algebra 2/Int. Math 3 2 credits beyond Algebra 2 5 credits from the Academy	2 credits Algebra 1/Int. Math 1 2 credits Geometry/Int. Math 2 2 credits Algebra 2/Int. Math 3 2 credits beyond Algebra 2 3 credits from the Academy	2 credits Algebra 1/Int. Math 1 2 credits Geometry/Int. Math 2 2 credits Algebra 2/Int. Math 3 2 credits beyond Algebra 2 1 credit from the Academy
English	8 credits total 1 credit Intro Literary Studies 5 credits from the Academy	8 credits total 1 credit Intro Literary Studies 3 credits from the Academy	8 credits total 1 credit from the Academy
Social Studies	2 credits Geography/History of the World 2 credits U.S. History 1 credit Economics 1 credit U.S. Government 5 credits from the Academy	2 credits Geography/History of the World 2 credits U.S. History 1 credit Economics 1 credit U.S. Government 3 credits from the Academy	2 credits Geography/History of the World 2 credits U.S. History 1 credit Economics 1 credit U.S. Government 1 credit from the Academy
World Language	6 credits one language OR 4 credits each two languages 2.5 credits from the Academy or test into third year	6 credits one language OR 4 credits each two languages 2.5 credits from the Academy or test into third year	6 credits one language OR 4 credits each two languages 2.5 credits from the Academy or test into third year
Fine Arts	2 credits	2 credits	2 credits
Phys Ed	2 credits	2 credits	2 credits
Health	1 credit	1 credit	1 credit
Digital Apps	0.5 credit OR test out	0.5 credit OR test out	0.5 credit OR test out
Colloquium	1 credit	1 credit	1 credit
May Term	1.5 credits	1 credit	0.5 credits
Min. Acad. Credits	39	26.5	13

and ONE of these for everyone:

- SAT score of 1250+, Math 560+, English 590+
- ACT combined score of 26+ with writing section
- 2 Full year AP courses with exams taken
- 2 Dual Credit courses with dual credits earned
- Combination of 1 full year AP course with exam and 1 Dual Credit course

GRADUATION REQUIREMENTS (Continued)

Indiana Diploma With Enrollment Honors Plus Seal Graduation Requirements for Students

Requirements for:	Students who enter as SOPHOMORES	Students who enter as JUNIORS	Students who enter as SENIORS
Science	2 credits biology 2 credits chemistry 2 credits physics 1 credit computer science 6 cr. lab science from Academy	2 credits biology 2 credits chemistry 2 credits physics 1 credit computer science 4.5 cr. lab science from Academy	2 credits biology 2 credits chemistry 2 credits physics 1 credit computer science 1.5 cr. lab science from Academy
Math	2 credits Algebra 1 2 credits Geometry 2 credits Algebra 2 2+ credits beyond Algebra 2 1 credit Personal Finance 5 credits from the Academy	2 credits Algebra 1 2 credits Geometry 2 credits Algebra 2 2+ credits beyond Algebra 2 1 credit Personal Finance 3 credits from the Academy	2 credits Algebra 1 2 credits Geometry 2 credits Algebra 2 2+ credits beyond Algebra 2 1 credit Personal Finance 1 credit from the Academy
English	8 credits total 2 credits English 9 1 credit Intro Literary Studies 1 credit communication course 5 credits from the Academy	8 credits total 2 credits English 9 1 credit Intro Literary Studies 1 credit communication course 3 credits from the Academy	8 credits total 2 credits English 9 1 credit communication course 1 credit from the Academy
Social Studies	2 credits World Perspectives 2 credits U.S. History 1 credit U.S. Government 1 credit state-approved elective 5 credits from the Academy	2 credits World Perspectives 2 credits U.S. History 1 credit U.S. Government 1 credit state-approved elective 3 credits from the Academy	2 credits World Perspectives 2 credits U.S. History 1 credit U.S. Government 1 credit state-approved elective 1 credit from the Academy
World Language	4 credits one language 2.5 credits from the Academy or test into third year	4 credits one language 2.5 credits from the Academy or test into third year	4 credits one language 2.5 credits from the Academy or test into third year
Prep for College	1 credit	1 credit	1 credit
Phys Ed	1 credit	1 credit	1 credit
Health	1 credit	1 credit	1 credit
Colloquium	1 credit (also counts as communication credit)	1 credit (also counts as communication credit)	1 credit (also counts as communication credit)
May Term	1.5 credits	1 credit	0.5 credits
Min. Acad. Credits	39	26.5	13

PLUS: ONE of these for everyone:

- SAT score of 1250+, Math 560+, English 590+
- ACT combined score of 26+ with writing section
- 2 Full year AP courses with exams taken
- 2 Dual Credit courses with dual credits earned
- Combination of 1 full year AP course with exam and 1 Dual Credit course

PLUS: Earn a credential of value

(subject-specific Associates degree, the Indiana College Core, or AP Scholar with Distinction)

PLUS: Complete 75 hours work-based learning

(25 hours minimum in each of 1 to 3 experiences, documented with learning plan)

INDIANA GRADUATION PATHWAYS



Indiana GRADUATION PATHWAYS

The path to graduation is not one-size-fits-all. Indiana provides many pathways for students to earn a high school diploma.

OVERVIEW

Students starting with the Class of 2023 must meet all of the following:

- 1 Credits**
- 2 Learn & Demonstrate Employability Skills**
- 3 Postsecondary-Ready Competencies**

DIPLOMA REQUIREMENTS

- 1 Credits**
Earn credits toward a diploma with designation.
 - Core 40 - minimum 40 credits
 - Academic Honors - minimum 47 credits
 - Technical Honors - minimum 47 credits
 - General
- 2 Learn & Demonstrate Employability Skills**
Produce defined outcome(s) based on experience.
Defined Outcome Options
 - Videos
 - Papers
 - Resume
 - Dual Credit
 - Certifications
 - Portfolio
 - Projects
 - Slideshows
 - Presentation
 - Five Year Goal Plan
 - Reflection of Experience
 - Letters of Recommendation
 - Letter of Employment Verification
 - Postsecondary-related Experiences
 - Co-Curricular Participation
 - Extra-Curricular Participation
 - Locally Defined Outcome
- 3 Postsecondary-Ready Competencies**
Meet at least one of these competencies.
 - **Honors Diploma**
academic or technical
 - **SAT**
reading/writing = 480, math = 530
 - **ACT**
english = 18, reading = 22, math = 22, science = 23 (2 out of 4 needed with at least one in English/Reading and one in Math/Science)
 - **ASVAB**
minimum of 31
 - **Industry Certification**
certification from approved DWD list
 - **Apprenticeship**
federally recognized
 - **CTE Concentrator**
C average or higher in at least 2 advanced HS courses in a state-approved CTE Pathway
 - **AP/IB/Dual Credit/ Cambridge International/CLEP**
C average or higher in 3 courses (1 of the 3 courses must be in core content area or all three must be part of a CTE pathway)
 - **Locally Created Pathway**
approved by SBOE
 - **Waiver**
see listed web link

TRACKING

- 1 Transcript with Completed Courses**
 - **Project-Based Experience**
Allows students to gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging, and complex question.
- 2 Work Toward Completion of One of the Experiences *Below***
 - **Service-Based Experience**
Integrates academic study with service experience, reflects larger social, economic, and societal issues, and collaborative efforts between students, schools, and community partners.
- 3 Course Selection, Graduation Plan, & Testing Opportunities**
 - **Work-Based Experience**
Activities that occur in a workplace while developing the student's skills, knowledge, and readiness for work.

HUMANITIES: ENGLISH

CL College Level

DC Dual Credit

REQUIRED COURSES

Every student who enters as a sophomore or junior must take **American Literature** the fall semester and **World Literature** the spring semester.

ENG05144 – Introduction to Literary Studies (CL)

Prerequisite: None
Credit: 1 credit
Offered: Fall and Spring

This course invites students to explore genres of literature as dynamic, surprising, and worthy of serious consideration. Students will read poetry, drama, novels, short stories, biographies, journals, diaries, essays, and other forms to discover how literary meaning is created through language, form, genre, and historical and cultural context. Students analyze how each genre shapes literary understanding or experiences differently, how different genres enable or constrain the expression of ideas, how certain genres have had a stronger impact on the culture than others in different historical times periods, and what the most influential genres are in contemporary times. Thus, class discussions will focus on noticing what stands out in a text, asking compelling questions, and testing different interpretations rather than searching for a single “right” answer. Students will practice close reading, creative and analytical writing, and collaborative discussion while exploring how literature reflects, challenges, and reshapes culture. The course is designed to be an engaging introduction to literary study that builds confidence, curiosity, and the skills needed for more advanced English courses.

ELECTIVES

ENG103 – Composition and Rhetoric (DC)

*Available for College Credit (see pg. ii)

Prerequisite: None
Credit: 1 credit
Offered: Fall

This course introduces and develops an understanding of principles of rhetoric, basic research methods, and the elements, strategies, and conventions of persuasion used in constructing written and multi-modal texts.

*Ball State University offers 3 college credit hours in ENG 103 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

ENG104 – Composing Research (DC)

*Available for College Credit (see pg. ii)

Prerequisite: None
Credit: 1 credit
Offered: Spring

This course applies the fundamentals of rhetoric to the research process: methods of research; the rhetorical nature of research; elements, strategies, and conventions common to research writing, including multimodal presentations of new knowledge.

*Ball State University offers 3 college credit hours in ENG 208 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

HUMANITIES: ENGLISH (Continued)

ENG05104 – The Irish Literary Revival (CL)

Prerequisite: None
Credit: 1 credit
Offered: Spring

This course focuses on the ways that the Irish Literary Revival at the turn of the twentieth century refashioned and adapted earlier myths, literary forms, characters, and themes of Irish literature and the Irish nation. We will examine how Irish writers selected elements of their country's past literary traditions and then revised, rewrote, or re-presented those elements as a part of a literary, nation-making project, which unfolded as Ireland itself fought for and achieved independence from the British Empire. We will pay close attention to the ways in which older themes or characters which did not align with Ireland's twentieth-century, nationalist vision of itself may have been excluded or written out of the mainstream literary tradition. We'll move between novels, drama, poetry, and prose to practice the methods required for writing literary analysis of these forms. No experience with the Irish language is necessary, yet we will consider Irish-language texts in translation and the impact that has on storytelling and meanings.

ENG05108 – Detective Fiction (CL)

Prerequisite: None
Credit: 1 credit
Offered: Fall

Detective Fiction introduces students to the particularities of the mystery genre and immerses them in discourses regarding the intersection of mainstream literature with popular culture. Arguably developed first in the nineteenth century, the notion of an arch investigator continues to appear in many contemporary forms but almost always as someone whose investigation operates beyond and outside of police forces. From the cerebral deductions of Sherlock Holmes and his good-natured competition with Scotland Yard, to Phillip Marlowe's calling out of police corruption, the detective figure and the crimes they solve offer us a way to explore ethical dilemmas and plumb the psychological depths of human behavior. Simultaneously, these stories offer a much needed reminder that many of our society's most cherished philosophical ideals, such as "truth," "duty," and "justice", can be achieved only through questioning and holding in check those in power. Assignments will involve students thinking critically to interpret texts, group discussions, occasional quizzes to ensure comprehension of subject matter, and a final research project of a creative and/or analytical nature that involves both a written and presentational aspect.

ENG05114 – Literature of The World Wars (CL)

Prerequisite: None
Credit: 1 credit
Offered: Fall

In our increasingly global world, there is a great need to have an understanding of how prior global conflicts have shaped our cultural history. Literature of The World Wars offers such an examination by exploring works of prose and poetry, many written by former soldiers, that attempt to grapple with how to represent the chaos and tragedy of wars waged on a world-wide scale. Students will analyze the topics and methodologies of writers of varied nationalities, all of whom offer different experiences and perspectives on their involvement with the World Wars, from British and U.S. servicemen to everyday citizens who survived atrocities like the Holocaust. With this study, as well as with an application of literary theories and critical voices normal to English courses, students will have the opportunity to expand their critical thinking skills and confront some of the most impactful moments of recent history.

HUMANITIES: ENGLISH (Continued)

ENG05117 – Critical Approaches to Literature (CL)

Prerequisite: None
Credit: 1 credit
Offered: Spring

This course on literary criticism provides a survey of advanced theoretical frameworks used to analyze texts. Beginning with the question of ‘what is literature?’, this discussion-driven course explores a variety of modern methods for making meaning. With a thematic emphasis on the literary construction of otherness, students will be introduced to a wide range of critical approaches by applying them to exciting and challenging works, such as *Frankenstein*, *Dracula*, *The Bluest Eye*, and *Annihilation*. Additionally, students will engage with scholarly articles, develop academic research skills, and construct a literature review to prepare for their own analytical essays.

ENG05138 – Studies in the Novel (CL)

Prerequisite: None
Credit: 1 credit
Offered: Fall

In this course, students will learn about the development of the novel, while sharpening their critical thinking, analytical writing, and close-reading skills. We will examine the way writers from a variety of backgrounds and literary periods transform the novel by exploring new subject matter and form and subverting or building on existing literary traditions. Oral participation, daily reading responses, and literary analysis papers will challenge students to read closely, identify important themes and concepts, assert thesis claims, and prove their arguments through detailed analysis of textual evidence.

ENG05146 – Making Meaning: The Art of Visual Semiotics (CL)

Prerequisite: None
Credit: 1 credit
Offered: Fall

This course introduces students to the critical and creative field of visual semiotics—the study of how art and design express and communicate meaning through the use of signs—drawing on theories and practices from art history, communication, aesthetics, linguistics, and studio art. Taking on the identity of both critic and creator, students will develop skills in the semiotic interpretation of visual art and communication, articulate how semiotic theories inform creative practices, and produce a portfolio of their own art and design that demonstrates a semiotically-informed ability to communicate through, and instill meaning in, visual forms. No previous art experience is necessary—simply curiosity and a willingness to experiment.

ENG05147 – Ecohorror and Environmental Literature (CL)

Prerequisite: None
Credit: 1 credit
Offered: Spring

Ecohorror and Environmental Literature is a course that invites students to explore the fascinating overlap between science and culture by taking an interdisciplinary approach to storytelling. In a world beset by increased natural disasters - storms, droughts, wildfires, floods – discussions and debates about the causes and consequences of environmental issues frequently form the basis for adventure and horror. More than just scary stories, such tales reflect how monsters and madness often indicate deep-seeded human anxieties and emotions about important environmental issues. Toxic terrors of pollution, mythic mushrooms, evolutionary evils; there seems to be no limits to the interplay between nature and the human imagination. Looking at these thrills and chills of fictional stories, alongside the non-fiction of science and nature writing, students will discover how human behavior has influenced, and been influenced by, the intricacies of place and nature. In this way, students will address how society can use written communication to prevent humans from being the next endangered species. Coursework will include both discussion and writing, involving a variety of short reflections and creative exercises as well as longer analytical essays.

HUMANITIES: ENGLISH (Continued)

ENG05148 – Panel Breakdowns: Reading Contemporary Comics (CL)

Prerequisite: None
Credit: 1 credit
Offered: Spring

Students gain an appreciation of the specific history, form, and culture of modern long-form comics through in-depth engagement with representative and canonical works, developing skills and strategies for reading and analyzing visual-verbal texts through both formal and cultural lenses. In the 21st century, comics are a critically respected form, participating as a vital part of the contemporary artistic and cultural landscape. Highlighting contemporary trends and genres, this class offers an engaging survey of the culturally nuanced and formally complex nature of contemporary long-form comics.

ENG05113S1/05113S2 – Creative Writing (CL)

Prerequisite: None
Credit: 1 credit
Offered: Fall (ENG05113S1) or Spring (ENG05113S2)

Students in this one-semester class write poetry, short stories, plays, and creative non-fiction with opportunities for oral participation. The concept of manipulation of language to convey ideas, feelings, moods, and visual images is the basis of the course. The students become familiar with the standard literary elements through the reading and study of published prose and poetry and are taught to use those elements in their own writing. They learn strategies for evaluating their own writing and the writing of others. Students who are interested in an audience for their creative work and suggestions for improvement and development of their literary styles are encouraged to sign up for this course.

ENG01012/01012S2 – Advanced English as a Second Language (CL)

Prerequisite: None
Credit: 1 credit
Offered: Fall/Spring Sequence

This course is designed for international students who want to understand academic writing in an American context. It provides foundational academic writing skills essential for writing paragraphs and essays. It develops processes for critical reading, writing, and responding to a variety of texts in order to compose various academic essays. It promotes an awareness of the interplay among purpose, audience, content, structure, and style while introducing documentation methods. Students are expected to demonstrate rhetorical skills, use academic language such as academic vocabulary, collocations, and phrases, and demonstrate effective use of structure, grammar, punctuation, and spelling. They are also expected to understand American academic conventions including the issue of plagiarism in academic writing.

ENG05140 – Global Cinema (CL)

Prerequisite: None
Credit: 1 credit
Offered: Fall

Global Cinema provides students with the opportunity to explore the art of film in a global context. Students will analyze the preoccupations and methodologies of filmmakers and their films from nations like France, Germany, Taiwan, Sweden, India, the Czech Republic, and Mexico. Studying the moving image is akin to studying poetry, and students will be asked to challenge and expand their visual literacy and critical thinking skills. We will study materials in film and art theory, philosophy, and cultural studies, and write thesis-based analytical papers in which we apply theory to film analysis and confront the fictions and non-fictions of worlds beyond our own. In doing so, we will have the chance to see and to understand ourselves better. The course may have guest lecturers from other departments, like language and history, and, when possible, we will screen films in a BSU screening room.

HUMANITIES: ENGLISH (Continued)

ENG05141S1 – Speculative Fiction (CL)

Prerequisite: None
Credit: 1 credit
Offered: Fall

Speculative Fiction will engage with prevailing questions of society, identity, history and technology through the lens of science fiction, fantasy, horror and other genres. It will explore how literature uses provocative premises to engage in thought experiments and social critique. It will focus on key topics which will be addressed through a sequence of works, emphasizing comparative analysis and a variety of perspectives. Throughout the class we will engage in discussion and debate about the daily readings and their subject matter, produce analytical work about the material, and develop our own speculative topics which reflect the experiences and concerns which are most relevant to us.

ELECTIVES

English Quarter Courses

ENG05118 – The Short Story (CL)

Prerequisite: None
Credit: .5 credit
Offered: Quarter 3

The short story is sometimes an under-appreciated art form. Within the space of a few pages, an author must weave a story that is compelling, create characters readers care about and drive the story to its ultimate conclusion. This short story quarter course will include many of the best short story writers of all time, authors who have mastered the art of the short story, turning condensed pieces into memorable works of literature. Students will read, analyze, and discuss short stories written in English or famous works that have been translated into English including major authors such as Hawthorne, Melville, Twain, Cather, Ellison, Hughes, Hemingway, Faulkner, Anderson, O’Conner, Salinger, Vonnegut, Munro, Mansfield, Erdrich, Alexie, Conrad, Joyce, Tolstoy, Chekhov, Borges, Garcia, Kafka, and many more.

ENG05143 – Game Studies & Design (CL)

Prerequisite: None
Credit: .5 credit
Offered: Quarter 4

As old as history and as new as the latest release, games have played an outsized role in human culture. The advent of digital games has led to an explosion of artistic experimentation and a competitive industry. This course will introduce students to the academic field of game studies, providing an opportunity to think deeply about games and how they function in contemporary culture. It will also encourage students to become active participants in that culture. Students may pursue one of two tracks: a critical track and a design track, with critical students performing scholarly analysis, and design students working to develop a prototype game.

HUMANITIES: SOCIAL STUDIES

CL College Level

DC Dual Credit

REQUIRED COURSES

For an Academic Honors Diploma students need to have successfully completed: 2 semesters of World History, 2 semesters of United States History, 1 semester of Government and 1 semester of Economics. For more information, see the Academy Diploma Requirements on page vi.

SOC203 – American History, 1492-1876 (DC)

*Available for College Credit (see pg. ii)

Prerequisite: None
Credit: 1 credit
Offered: Fall

This course surveys the American historical experience through 1876. Students will examine key events, ideas, personalities and movements from before European exploration to the end of Reconstruction.

*Ball State University offers 3 college credit hours in HIST 201 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

SOC204 – American History, 1877-Present (DC)

*Available for College Credit (see pg. ii)

Prerequisite: None
Credit: 1 credit
Offered: Spring

This course surveys the American historical experience since 1877. Students will examine key events, ideas, personalities and movements since the end of Reconstruction.

*Ball State University offers 3 college credit hours in HIST 202 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

SOC301 – Exploring United States Government: Political Theory and Practice (CL)

Prerequisite: Two credits of American History or Senior status
Credit: 1 credit
Offered: Fall

An exploration of United States government, with particular reference to past and present political theory. Students will be exposed to a wide variety of thinkers and ideas, as both the sources of American law and government and as comparative examples. Connections will be made between theory and practice, and students will be encouraged to think creatively about the nature, history, and present course of American government and politics. Critical thinking and productive civil discourse will be consistently emphasized. (Only one credit can be earned from the Exploring United States Government course series.)

SOC303 – Exploring United States Government: The Constitution (CL)

Prerequisite: Two credits of American History or Senior status
Credit: 1 credit
Offered: Spring

An exploration of United States government, with particular attention to the history and role of the Constitution. The Constitution of the United States is not only the law of the land, it is also the fundamental political mechanism under which the nation has achieved unprecedented freedom and prosperity. This course will provide students with both a historical background and a modern working knowledge of the Constitution and the American political system. Discussions will regularly consider how the Constitution applies to current issues. Critical thinking and productive civil discourse will also be consistently emphasized. (Only one credit can be earned from the Exploring United States Government course series.)

HUMANITIES: SOCIAL STUDIES (Continued)

ECONOMICS

ECON116/116S2 – Survey of Economics (CL)

Prerequisite: Two credits of American History or Senior status
Credit: 1 credit
Offered: Fall (ECON116) or Spring (ECON116S2)

An introduction to important and influential economic theories and circumstances, with specific examples chosen by the instructor. Course topics will include the study of scarcity and economic reasoning, supply and demand, market structures, the role of government, national economic performance, the role of financial institutions, economic stabilization, and trade.

ELECTIVES

SOC05101 – Indiana History (CL)

Prerequisite: None
Credit: 1 credit
Offered: Spring

This course will examine the history of Indiana through the present day. Major personalities and important events in the political, economic, literary, philosophical, intellectual, educational, and social realms will be explored. Hoosier hospitality will be the norm for discussion—even when asking the age-old question: what exactly is a “hoosier?”

SOC05102 – Decades of Controversy (CL)

Prerequisite: None
Credit: 1 credit
Offered: Fall

This course will examine the domestic, national and international policies, forces, and events, which formed a 20-year time frame of contradictions, contrasts, and progress in US History 1948-1968. Special emphasis will focus on the ideological philosophies, which were existing, developing, and being challenged in politics, economics, foreign affairs, and national culture. Overriding themes include significant social developments, cultural ideas in conflict, rival political policies, and an analysis of the influence of Pax Americana. As students explore the controversies of the decades from 1948 to 1968, they will develop historical research skills using both primary and secondary sources.

SOC05137 – Prosperity and Depression, 1920-1945 (CL)

Prerequisite: None
Credit: 1 credit
Offered: Spring

This course explores the American national history from 1920 to 1945. Particular attention is given to national political, economic, social, and cultural development; the 1920s; the Great Depression and New Deal; and the American home front of the first half of the 1940s.

SOC05138 – Workers in America (CL)

Prerequisite: None
Credit: 1 credit
Offered: Fall

This course will explore the major issues and historical transformations of the American working class. Particular focus will fall on the institution of slavery as a labor system, the early attempts at solidarity, the rise of corporate capitalism, the emergence of labor organizations during the industrial period, the ideologies of the working class, and the impact of downsizing on workers. Specific attention will be given to the roles of gender, race, ethnicity, and technological changes in defining the experiences of the working class.

HUMANITIES: SOCIAL STUDIES (Continued)

SOC05130S2 – The West in the World (DC)

*Available for College Credit (see pg. ii)

Prerequisite: None
Credit: 1 credit
Offered: Spring

The West in the World is a survey of the development of Western Civilization since its origins emphasizing key problems, turning points, and recurring themes, especially in the past two centuries. The course emphasizes the civilization that emerged and developed in Europe and spread to the Americas during the past two millennia. The West in the World also focuses on the way peoples around the globe helped to shape Western Civilization and how they felt its influence. Non-Western civilizations have exercised a powerful influence on Western Civilization, and the West has interacted with the rest of the world throughout its history.

*Ball State University offers 3 college credit hours in HIST 150 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

SOC05140 – History of World Religions (CL)

Prerequisite: None
Credit: 1 credit
Offered: Spring

Explore the development of religions around the globe that have greatly affected large numbers of people and had significant impact on the development of world civilizations. We will examine key events related to people and places, as well as transcultural interaction and exchanges. Special emphasis will be placed on exploring the interaction between different religions. We will focus on primary sources in order to discover, from the words of their own sacred texts, the beliefs that have motivated millions of diverse peoples and civilizations throughout world history.

HUMANITIES: WORLD LANGUAGES

CL College Level

DC Dual Credit

FRN1A/1B – Beginning French 1 (DC)

*Available for College Credit (see pg. ii)

Prerequisite: *Fall* – None
Spring – Successful completion of FRN1A or permission of instructor
Credit: 1.25 credits per semester
Offered: Fall/Spring Sequence

This course introduces the fundamental elements of the French language. Emphasis is on the development of basic listening, speaking, reading, and writing skills in the context of cultural exploration of the Francophone world. Using authentic resources, students will learn functional vocabulary, be introduced to different cultures, and discover how the French language and culture connects with their own. Students learn to participate in brief conversations, to read and understand words, phrases and short passages in context, and to respond in writing to various stimuli, all while demonstrating cultural awareness.

*Ball State University offers 4 college credit hours per semester in FR 101 and 102 to students who complete both semesters of this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

FRN2A/2B – Intermediate French 2 (DC)

*Available for College Credit (see pg. ii)

Prerequisite: *Fall* – Placement, successful completion of FRN1B, or permission of instructor
Spring – Successful completion of FRN2A or permission of instructor
Credit: 1.25 credits per semester
Offered: Fall/Spring Sequence

This course builds upon the fundamental elements of the language through extended vocabulary and the introduction of complex grammatical structures. Students will continue to develop listening, speaking, reading, and writing skills in a cultural context. Using authentic resources, students will expand their vocabulary, be introduced to different cultures, and discover how the French language and culture connects with their own. By the end of the course, students should be able to speak, read, write and comprehend French with increasing proficiency while demonstrating cultural awareness of the Francophone world.

*Ball State University offers 3 college credit hours in FR 201 to students who complete FRN2A and 2B. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

HIGHER LEVELS OF FRENCH may be taken at Ball State University. The Academy is not responsible for fees associated with these courses. Questions can be directed to the Guidance Office.

HUMANITIES: WORLD LANGUAGES (Continued)

GER1A/1B – Beginning German 1 (DC)

*Available for College Credit (see pg. ii)

Prerequisite: *Fall* – None
Spring – Successful completion of GER1A or permission of instructor
Credit: 1.25 credits per semester
Offered: Fall/Spring Sequence

This course is designed to introduce students to the fundamentals of German grammar and to basic vocabulary. Emphasis is on the development of both written and verbal skills. To that end, students participate in activities pertaining to German language and culture in and outside of class. The goal is for students to accomplish the level of proficiency that enables them to communicate accurately and comfortably on a conversational basis and to be able to write in a clear, comprehensible manner in the German language. Students are expected to utilize communication skills such as responding and giving oral directions and commands, making routine requests, understanding and using appropriate forms of address, telling about daily routines and events, asking and answering simple questions and participating in brief conversations, reading isolated words and phrases in a situational context, comprehending words and phrases in appropriate contexts and responding in writing to various topics.

*Ball State University offers 4 college credit hours per semester in GER 101 and 102 to students who complete both semesters of this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

GER2A/2B – Intermediate German 2 (DC)

*Available for College Credit (see pg. ii)

Prerequisite: *Fall* – Placement, successful completion of GER1B, or permission of instructor
Spring – Successful completion of GER2A or permission of instructor
Credit: 1.25 credits per semester
Offered: Fall/Spring Sequence

In both semesters of this course, students use the textbook “Stationen,” which focuses on major cities in Germany, Austria, and Switzerland. Each chapter highlights important historical events and characteristics of a particular city and famous people associated with that city. In addition to the cultural aspect, students are introduced to more complex grammar structures and asked to begin incorporating those structures into their writing and speaking in order to achieve the level of proficiency consistent with a second year college level language course. A variety of exercises and activities help to practice the new vocabulary and grammar so that students improve their writing, reading, speaking and listening skills while learning about German culture, history, and literature.

*Ball State University offers 3 college credit hours in GER 201 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

GER3A/3B – Advanced German 3 (DC)

*Available for College Credit (see pg. ii)

Prerequisite: 4 semesters of German or permission of instructor
Credit: 1.25 credits per semester
Offered: Fall/Spring Sequence

Advanced German 3 is for students who have had the equivalent of four semesters of German. It will cover the grammar and vocabulary necessary to achieve intermediate proficiency. In addition to the grammar instruction, students will learn about the culture and history of major German cities and German-speaking cities in other countries (Austria, Switzerland). In the second semester, students will read German articles and level-appropriate literature, learn to write about pertinent topics with regards to the readings, and continue to work on speaking skills through meaningful discussion.

*Ball State University offers 3 college credit hours in GER 202 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

HUMANITIES: WORLD LANGUAGES (Continued)

KOR1A/1B – Beginning Korean 1 (CL)

Prerequisite:	<i>Fall</i> – None <i>Spring</i> – Successful completion of KOR1A or permission of instructor
Credit:	1.25 credits per semester
Offered:	Fall/Spring Sequence

This course is a beginner Korean language course. It is designed for those who have no prior knowledge of Korean. The course is framed in a way that the students practice the five language skills (speaking, listening, grammar, reading, and writing) in student-centered communicative and task-based activities and explore Korean culture. Students are expected to be able to understand the Korean alphabet system (Hangul) and read the written text. They will communicate appropriately in the interpersonal mode in daily situations such as greetings, introducing oneself, locations, numbers, and daily and weekend activities (for Beginning 1A) and in everyday life contexts as part of living in contemporary Korean society such as ordering food, talking on the phone, and taking various modes of transportation (for Beginning 1B). Students are also expected to be able to understand grammar, vocabulary, and expressions and use them in their communication and to understand various aspects of Korean culture inscribed in the Korean language and Korean society.

KOR2A/2B – Intermediate Korean 2 (CL)

Prerequisite:	<i>Fall</i> – Placement, successful completion of KOR1B, or permission of instructor <i>Spring</i> – Successful completion of KOR2A or permission of instructor
Credit:	1.25 credits per semester
Offered:	Fall/Spring Sequence

In Korean 2A, students will be exposed to situations and topics such as weather and seasons, clothing and fashion, travel, life in Korea, and public transportation. In the second semester of Intermediate Korean, students will be introduced to situations and topics such as birthday parties, beauty salons and barbershops, hobbies, holidays in Korea, hospitals and drugstores, cultural differences, academic majors, and jobs/professions. By the end of the 2A/2B sequence, students are expected to be able to use acquired speaking, listening, reading, writing skills, knowledge of Korean culture and grammar appropriate for engaging in these situations in order to develop a balanced functional proficiency in Korean.

HUMANITIES: WORLD LANGUAGES (Continued)

SPN2A/2B – Intermediate Spanish 2 (DC)

*Available for College Credit (see pg. ii)

Prerequisite: *Fall* – Placement, successful completion of SPN1B, or permission of instructor

Spring – Successful completion of SPN2A or permission of instructor

Credit: 1.25 credits per semester

Offered: Fall/Spring Sequence

The second course in the Spanish language series, this course represents a continuation of grammar, vocabulary, pronunciation and listening with emphasis on both reading and writing. In addition, special emphasis is placed upon the language as an integral component of Spanish and Hispanic cultures.

Students are expected to be able to ask questions regarding routine activities, participate in conversations on a variety of topics, relate a simple narrative about a personal event or experience, interact in a variety of situations to meet personal needs, understand main ideas and facts from simple texts, read aloud properly, and write briefly in response to given situations.

*Ball State University offers 3 college credit hours in SPN 201 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

SPN3A/3B – Advanced Spanish 3 (DC)

*Available for College Credit (see pg. ii)

Prerequisite: *Fall* – Placement, successful completion of SPN2B, or permission of instructor

Spring – Successful completion of SPN3A or permission of instructor

Credit: 1.25 credits per semester

Offered: Fall/Spring Sequence

Building upon and drawing distinctions from skills established within the grammar, vocabulary, pronunciation, listening and culture curriculum of the previous courses, this course focuses on listening (Spanish film, news broadcasts, etc.), speaking (oral presentations), reading comprehension and writing (summarization of reading passages, essays). Students are expected to respond to factual and interpretive questions and interact in a variety of social situations, read for comprehension, read short literary selections of poetry, plays, and short stories, complete authentic forms and documents and take notes that require familiar vocabulary and structures, write paraphrases, summaries, and brief compositions, describe different aspects of the culture, and participate appropriately.

*Ball State University offers 3 college credit hours in SPN 202 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

SPN 4A/4B – AP Spanish Literature and Culture (CL)

Prerequisite: *Fall* - Advanced Spanish 3 (BSU SP 202) or placement.

Spring – Successful completion of SPN 4A or permission of instructor.

Credit: 1 credit per semester

Offered: Fall/Spring Sequence

AP Spanish Literature is equivalent to a college level introductory survey course of literature written in Spanish. Students continue to develop their interpretive, interpersonal, and presentational skills in Spanish language as well as critical reading and analytical writing as they explore short stories, novels, plays, essays, and poetry from Spain, Latin America, and U.S. Hispanic authors along with other non-required texts.

MATHEMATICS

CL College Level

DC Dual Credit

MAT02900 – Personal Financial Responsibility

Prerequisite: Algebra II or permission of Math Devison Chair
Credit: 1 credit
Offered: Fall or Spring

This course is designed to help students become financially responsible by addressing topics including budgeting, banking, home buying, installment financing, taxes, savings and investments, and debt management. Students will be equipped to make informed financial decisions by exploring record-keeping methods and by analyzing personal standards, needs, wants, and goals. Mortgages, insurance, securities, credit cards, and other financial products will be studied to build financially literate citizens. The course encourages students to use problem-solving skills and strategies in real-world contexts and to evaluate outcomes using mathematical analysis and data to support their findings.

MAT02999/03000 – Geometry 1, 2 (CL)

Prerequisite: *Fall* – Successful completion of Algebra I
Spring – Successful completion of Geometry 1 or permission of Math Division Chair
Credit: 1 credit per semester
Offered: Fall/Spring Sequence

In this two-semester sequence, geometry students examine the properties of two- and three-dimensional objects. Proof and logic, as well as investigative strategies in drawing conclusions, are stressed. Properties and relationships of geometric objects include the study of (1) points, lines, angles and planes; (2) polygons, with a special focus on quadrilaterals, triangles, right triangles; (3) circles; and (4) polyhedral and other solids. Use of graphing calculators and computer drawing programs is included.

MAT03001/03002 – Advanced Algebra/Trigonometry 1, 2 (CL)

Prerequisite: *Fall* – Placement
Spring – Successful completion of Advanced Algebra/Trigonometry 1 or permission of Math Division Chair
Credit: 1 credit per semester
Offered: Fall/Spring Sequence

This course covers topics that include solutions of systems of equations and inequalities, simplifying algebraic expressions, radicals, polynomial, exponential and logarithmic functions, circular and trigonometric functions including trigonometric identities and the trigonometry of right triangles. This course serves as preparation for Precalculus.

MAT03121/03122 – Advanced Placement Precalculus SL 1, 2 (DC)

*Available for College Credit (see pg. ii)

Prerequisite: *Fall* – Placement
Spring – Successful completion of AP Precalculus SL 1 or permission of Math Division Chair
Credit: 1 credit per semester
Offered: Fall/Spring Sequence

AP Precalculus – Standard Level prepares students for additional mathematical study by reviewing algebra and trigonometry. Topics include linear and quadratic functions, polynomial functions, inequalities, graphs of functions, exponential and logarithmic functions, trigonometric functions and equations, and triangle trigonometry, with a focus on mathematical modeling.

The two-semester sequence covers Units 1, 2, and 3 of the AP Precalculus Course and Exam Description and prepares students for the national AP exam. Students completing this course will generally choose from among Calculus, Statistics, and Quantitative Reasoning in the following year. Exceptional students may be considered for enrollment in Advanced Placement Calculus AB.

AP Precalculus – SL is not open to students with credit in the corresponding semester of AP Precalculus – EL.

*Ivy Tech Community College offers 3 college credit hours in MATH 136 to students who complete both semesters of this course. Refer to the Dual Credit section on the Academy website for details on enrollment and fees.

MATHEMATICS (Continued)

MAT03131/03132 – Advanced Placement Precalculus EL 1, 2 (DC)

*Available for College Credit (see pg. ii)

Prerequisite: *Fall* – Placement
Spring – Successful completion of AP Precalculus EL 1 or permission of Math Division Chair

Credit: 1 credit per semester

Offered: Fall/Spring Sequence

AP Precalculus – Extended Level provides the rigorous development of precalculus topics necessary to prepare students for studying Advanced Placement Calculus. The first semester will include the study of polynomial, rational, exponential, and logarithmic functions and their graphs. Topics for the second semester include trigonometry, polar coordinates, vectors, sequences and series, analytic geometry, parametric equations, and matrices. Elementary proof techniques and mathematical modeling will be employed throughout the course.

The two-semester sequence covers all four units of the AP Precalculus Course and Exam Description and prepares students for the national AP exam. Successful completion of this course will generally prepare students for Advanced Placement Calculus AB or BC or the equivalent college course.

AP Precalculus – EL 1 is not open to students with credit in AP Precalculus – SL 1.

* Ivy Tech Community College offers 3 college credit hours per semester in MATH 136 and MATH 137 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

MAT04123/04124 – AP Calculus AB 1, 2 (DC)

*Available for College Credit (see pg. ii)

Prerequisite: *Fall* – AP Precalculus EL 2 (MAT03132) or AP Precalculus SL 2 (MAT03122) with teacher recommendation, or placement
Spring – Successful completion of AP Calculus AB 1 or permission of Math Division Chair

Credit: 1 credit per semester

Offered: Fall/Spring Sequence

This course covers the College Entrance Examination Board's AB syllabus in Advanced Placement Calculus. Students are encouraged to register for the AP exam and may find that their college grants them credit equivalent to one semester of college calculus. Topics covered include properties of functions, limits, differential calculus and its applications, and integral calculus and its applications. Treatment of these topics involves both theory and its implementation on graphing calculators.

Not open to students with credit in AP Calculus BC.

*Ball State University offers 4 college credit hours in MATH 165 to students who complete both semesters of this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

MAT04133 – AP Calculus BC 1 (DC)

*Available for College Credit (see pg. ii)

Prerequisite: AP Precalculus EL 2 (MAT03132) with teacher recommendation, or placement

Credit: 1.25 credits

Offered: Fall

This course meets four days a week and covers the College Entrance Examination Board's BC syllabus in Advanced Placement Calculus. Students are encouraged to register for the AP exam and may find that their college grants them credit for up to two semesters of calculus. Topics covered include limits, derivatives, and integrals as well as their application in numerous real-world problems. Treatment of these topics involves both theory and its implementation on graphing calculators.

AP Calculus BC 1 is not open to students with credit in AP Calculus AB 2.

*Ball State University offers 4 college credit hours in MATH 165 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

MATHEMATICS (Continued)

MAT04134/04134B – AP Calculus BC 2 (DC)

*Available for College Credit (see pg. ii)

Prerequisite: AP Calculus AB 2 (MAT04124) with teacher recommendation, AP Calculus BC 1 (MAT04133), or placement
Credit: 1.25 credits
Offered: Fall (MAT04134) or Spring (MAT04134B)

This course meets four days a week and covers the College Entrance Examination Board's BC syllabus in Advanced Placement Calculus. Students are encouraged to register for the AP exam and may find that their college grants them credit for up to two semesters of calculus. Topics covered include techniques of integration, series, vectors, and parametric equations, as well as their application in numerous real-world problems. Treatment of these topics involves both theory and its implementation on graphing calculators.

*Ball State University offers 4 college credit hours in MATH 166 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

MAT04514/04514B – Statistics (DC)

*Available for College Credit (see pg. ii)

Prerequisite: Algebra II
Credit: 1 credit
Offered: Fall or Spring

In this course, students do activities that guide them to discover statistical concepts, explore statistical principles, and apply statistical techniques. The course focuses on developing statistical reasoning through analysis of genuine data. The students will learn to describe the distribution of a variable, compare the distributions of two or more variables, and describe the relationship between two variables. The course introduces the issues of sampling, surveys, and experiments. Probability is introduced through simulations and these simulations build an understanding of the Central Limit Theorem. Inferences from data include confidence intervals and significance tests for a proportion, a mean, the difference between two proportions, and the difference between two means, both for matched pair designs and independent samples. Exploratory data analysis, data production issues and interpretation of results by the students are emphasized throughout.

*Ball State University offers 3 college credit hours in MATH 181 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

MAT04515 – Quantitative Reasoning (CL)

Prerequisite: Algebra II or permission of Math Division Chair
Credit: 1 credit
Offered: Spring

This course exposes students to a variety of practical applications in order to further develop problem-solving skills and other fundamental mathematics skills. Elementary probability theory and basic statistics are core topics of the course. Additional topics are selected from linear programming, mathematics of finance, voting methods, and graph theory.

ADVANCED ELECTIVES

MAT04522 – Discrete Mathematics (DC)

*Available for College Credit (see pg. ii)

Prerequisite: AP Calculus AB 2 (MAT04124), AP Calculus BC 1 (MAT04133) or permission of the Math Division Chair
Credit: 1.25 credits
Offered: Fall

The course is a survey of discrete mathematical topics selected from among logic, set theory, cardinality of sets, number systems, graph theory, combinatorics, recursion, and discrete probability. This course uses various proof techniques including mathematical induction and stresses algorithmic thinking and precise mathematical expression. This course meets four days a week.

*Ball State University offers 4 college credit hours in MATH 215 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

MATHEMATICS (Continued)

MAT04825 – AP Statistics (DC)

***Available for College Credit (see pg. ii)**

Corequisite: AP Precalculus EL 2 (MAT03132) or permission of Math Division Chair
Credit: 1.25 credits
Offered: Spring

This course meets four days a week and covers the College Entrance Examination Board's syllabus in Advanced Placement Statistics. It is organized around the four broad conceptual themes of exploring data, planning a study, producing models using probability and simulation, and statistical inference. Exploratory analysis of data uses graphical and numerical techniques. An appropriate graphing calculator, such as the TI-84, and appropriate statistical software, such as Minitab or SAS, are used. The variety of associations among variables permeates most of statistics. Exploring these types of associations will engage critical thinking, problem solving, and creative abilities.

*Ball State University offers 3 college credit hours in MATH 181 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

MAT04832 – Linear Algebra (DC)

***Available for College Credit (see pg. ii)**

Prerequisite: AP Calculus AB 2 (MAT04124) or AP Calculus BC 1 (MAT04133)
Credit: 1.25 credits
Offered: Fall

This course meets four days a week and includes the solution of linear systems, vector equations, linear transformations in two- and three-dimensional space, matrices and determinants, vector spaces, inner product spaces, eigenvalues and eigenvectors and related topics. There are some computational projects.

*Ball State University offers 4 college credit hours in MATH 217 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

MAT04833 – Multivariable Calculus (DC)

***Available for College Credit (see pg. ii)**

Prerequisite: AP Calculus BC 2 (MAT04134)
Credit: 1.25 credits
Offered: Spring

This course meets four days a week and covers multidimensional calculus with applications. The topics include higher dimensional analytic geometry, vector-valued functions, motion, curvature and torsion, partial differentiation, directional derivatives, optimization, multiple integration in rectangular, cylindrical and spherical coordinates, vector fields, divergence, curl, line and surface integrals, work, flux, flow, Green's theorem, the divergence theorem, Stokes' theorem, and the fundamental theorem for line integrals. Students work with graphing calculators and a computer algebra package.

*Ball State University offers 4 college credit hours in MATH 267 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

MAT04834 – Differential Equations (DC)

***Available for College Credit (see pg. ii)**

Prerequisite: AP Calculus BC 2 (MAT04134) or concurrent enrollment in AP Calculus BC 2 with the permission of the Math Division Chair
Credit: 1 credit
Offered: Spring

This course is an introduction to ordinary differential equations and boundary value problems. The topics include first order linear, separable, exact, and homogeneous equations with applications in biology, chemistry, physics, and finance; numerical methods for first order equations; second order linear homogeneous and non-homogeneous equations, including the methods based on reduction of order; undetermined coefficients and variation of parameters with applications in physics; n^{th} -order linear equations and systems of first order linear equations including use of eigenvectors and eigenvalues.

*Ball State University offers 3 college credit hours in MATH 374 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

COMPUTER SCIENCE

CL College Level

DC Dual Credit

CMP4001– Computing Foundations (CL)

Prerequisite: None
Credit: 1 credit
Offered: Fall or Spring

Computers and the internet have revolutionized the way we access and disseminate information. As technology continues to change at an ever-increasing pace, the need for students to gain a foundational understanding of computer science is clear. Computing Foundations for a Digital Age is designed to introduce students to five major topics within computer science including computing systems, networks and the internet, data and analysis, algorithms and planning, and impacts of computing. The course introduces foundational computing concepts while exploring current events and building critical thinking, collaboration, problem solving, and other important skills that are invaluable for life in a global and technologically advancing society.

CMP4301 – Computer Science II: Programming C++ (CL)

Prerequisite: None
Co-requisite: Computer Science II: Programming C++ Lab (CMP4301L)
Credit: 1.5 credits
Offered: Fall

Computer Science: Programming C++ explores and builds skills in programming and a basic understanding of the fundamentals of procedural program development using structured, modular concepts. Discussions will include the role of data types, variables, structures, addressable memory locations, arrays and pointers, and data file access methods. An emphasis on logical program design using a modular approach, which involves task-oriented program functions.

Fulfills a laboratory science course requirement.

CMP4302 – Computer Science II: Programming Python (CL)

Prerequisite: None
Co-requisite: Computer Science II: Programming Python Lab (CMP4302L)
Credit: 1.5 credits
Offered: Spring

This semester of Computer Science: Programming Python is an introduction to visual programming using Python, a high-level language, and an established programming paradigm. Developing problem solving skills and programming techniques will be emphasized. Skills learned in this course will be applied to computer gaming and software development.

Fulfills a laboratory science course requirement.

CMP4501/4502 – AP Computer Science Principles 1 and 2 (CL)

Prerequisite: Prereq for spring is successful completion of fall AP Computer Science principles
Co-requisite: AP Computer Science Principles 1 and 2 Lab (CMP4501L/CMP4502L)
Credit: 1.5 credits
Offered: Fall/Spring Sequence

The AP Computer Science Principles course is designed to be equivalent to a first-semester introductory college computing course. In this course, students will develop computational thinking skills vital for success across all disciplines, such as using computational tools to analyze and study data and working with large data sets to analyze, visualize, and draw conclusions from trends. The course engages students in the creative aspects of the field by allowing them to develop computational artifacts based on their interests. Students will also develop effective communication and collaboration skills by working individually and collaboratively to solve problems, and will discuss and write about the impacts these solutions could have on their community, society, and the world.

COMPUTER SCIENCE (Continued)

CMP4511/4512 – AP Computer Science A 1, 2 (DC)

*Available for College Credit (see pg. ii)

- Prerequisite:** *Fall* – Computer Science II: Programming C++ or Computer Science II: Programming Python or experience in a structured programming language and permission of instructor
Spring – Successful completion of AP Computer Science A 1
- Co-requisite:** *Fall* – AP Computer Science A 1 Lab (CMP4511L)
Spring – AP Computer Science A 2 Lab (CMP4512L)
- Credit:** 1.5 credits
- Offered:** Fall/Spring Sequence

This course uses a high-level, object-oriented programming language (Java). Students will learn syntax and the development of algorithms. The emphasis is on developing problem-solving skills and programming techniques. This course is designed for students with a computer programming background who desire a more challenging programming course. Semester 1 topics will include defining variables, primitive types vs. objects, methods, strings, if/else conditionals, loops, one- and two-dimensional arrays, array lists, inheritance, interfaces, abstract classes, basic input/output files and using applets, error handling, testing and debugging. Semester 2 topics will include using data structures such as linked lists, stacks, queues, binary trees, sequential and binary searching, sorting, traversing trees, and hashing. Laboratory activities include the required AP Computer Science A lab exercises.

Successful completion of this course will prepare the student for the Advanced Placement Computer Science A exam.

Fulfills a laboratory science course requirement.

*Ball State University offers 4 college credit hours in CS 120 to students who complete the first semester of this course and 4 college credit hours in CS 121 to students who complete the second semester of this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

SCIENCE: PHYSICS EMPHASIS

CL College Level

DC Dual Credit

Students will be placed in the appropriate physics level based on their math enrollment. Juniors may wish to delay taking physics until their senior year in order to build their math abilities.

For students who have no credits in General Physics, a comprehensive physics test, covering the subject matter of the two semesters of General Physics at the Academy, will be given to those students attempting to place out of the lecture portion of the course. This test will include questions to satisfy the Indiana physics standards and additional questions to satisfy the higher expectations of the Academy. The test will be given before classes start in the fall and may be taken only once.

There are two possible outcomes of this test:

- The student does not pass the exam, and thus is assigned to a physics course as the Academy math placement test dictates.
- The student does pass the exam, and thus can –
 - elect to not place out and thus take the General Physics course and that earned grade will appear on the transcript
 - use the spare credit to take another academy course. If this path is chosen, they will be required to take and pass both semesters of the lab portion of the General Physics course
 - take AP Physics I
 - take AP Physics C (if the student is concurrently enrolled in Calculus BC)

Passing this comprehensive physics placement test [upon completion of the laboratory requirement], or a higher level class, will satisfy a student's survey physics course requirement for their Indiana Academy diploma.

SCI03103/03103A – Physics & Astronomy: Physics (DC)

*Available for College Credit (see pg. ii)

Prerequisite:	None
Co-requisite:	Physics & Astronomy: Physics Lab (SCI03103L/03103AL)
Credit:	1.5 credits per semester
Offered:	Fall (SCI03103) or Spring (SCI03103A)

In this one semester course, students will explore basic classical and modern physics concepts of matter, motion, energy, and forces with application to mechanics, heat, sound, electricity and magnetism, light, atomic, nuclear, and elementary particles. No advanced knowledge of algebra or geometry is required, as simple math will be used to define and describe the physical relationships of ideas.

The lab portion of this course models the scientific process and gives students hands-on experience in dealing with many of the concepts covered.

* Ball State University offers 3 college credit hours in PHYC 100 to students who complete this Academy course. Refer to the Dual Credit section on the Academy website for details on enrollment and fees.

**Completing both this course and Physics & Astronomy: Solar System will satisfy the Indiana Academy graduation requirement of completing two semesters of physics.

SCIENCE: PHYSICS EMPHASIS (Continued)

SCI03104 – Physics & Astronomy: Solar System (DC)

*Available for College Credit (see pg. ii)

Prerequisite:	None
Co-requisite:	Physics & Astronomy: Solar System Lab (SCI03104L/03104AL)
Credit:	1.5 credits per semester
Offered:	Fall or Spring

In this one semester course, students will explore the history of astronomy and take a deep dive into the field of planetary science. There are elements of geology and physics in this Physics & Astronomy: Solar System, as well as a focus of the importance of light to understand Earth's backyard, the Solar System, and beyond.

The course also includes lab experience, launching students into basic calculations and creative projects that aids in understanding Earth, our neighboring planets, and the Sun. There will also be the occasional required late evening sky observation (as weather permits) and the occasional field trip to the Ball State Planetarium (as scheduling permits).

* Ball State University offers 3 college credit hours to students in ASTRO 100 to students who complete this course. Refer to the Dual Credit section on the Academy website for details on enrollment and fees.

**Completing both this course and Physics & Astronomy: Physics will satisfy the Indiana Academy graduation requirement of completing two semesters of physics.

SCI03111/03112 – AP Physics I (DC)

*Available for College Credit (see pg. ii)

Prerequisite:	Precalculus and math placement test score or permission of instructor or co-requisite enrollment in Academy AP Precalculus EL (MAT03131/03132).
Co-requisite:	AP Physics I Lab (SCI03111L/03112L)
Credit:	1.5 credits per semester
Offered:	Fall/Spring Sequence

AP Physics I proceeds at an accelerated pace and provides a physical introduction to the main principles of physics, which include Newtonian mechanics, oscillations and sound, electricity and magnetism, kinetic theory and thermodynamics, fluids, optics and modern physics. Emphasis will be given to linear and rotational applications to kinematics, forces, and momentum, as well as energy and power, gravitation, harmonic motion, and introductory electric circuits. Knowledge of geometry, algebra and some trigonometry is required for this course. Laboratory investigations emphasize concepts and inquire in order to develop proficiency in problem solving and in the application of fundamental principles to a wide variety of situations. This course is intended for those students whose career goals include life or earth science, pre-medicine, as well as other fields not directly related to science. Students will prepare for and are encourage to take the AP Physics I exam in May.

*Ball State University offers 4 college credit hours in PHYC 110 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

SCI03113/03114 – AP Physics II (DC)

*Available for College Credit (see pg. ii)

Prerequisite:	AP Physics I or permission of the instructor
Co-requisite:	AP Physics II Lab (SCI03113L/03114L)
Credit:	1.5 credits per semester
Offered:	Fall/Spring Sequence

AP Physics II builds upon what was learned in AP Physics I, and will emphasize fluid statics and dynamics; thermodynamics and kinetic theory; PV diagrams and probability; electrostatics, electric circuits with capacitors, magnets and electromagnetism; physical and geometric optics, and various topics in modern physics. Knowledge of geometry, algebra and some trigonometry is required for this course. Laboratory investigations emphasize concepts and inquiry in order to develop proficiency in problem solving and in the application of fundamental principles to a wide variety of situations. This course is intended for those student whose career goals include life or earth science, pre-medicine, as well as other fields not directly related to science. Student will prepare for and are encouraged to take the AP Physics II exam in May.

*Ball State University offers 4 college credit hours in PHYC 112 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

SCIENCE: PHYSICS EMPHASIS (Continued)

SCI04102/04103 – AP Physics C (DC)

*Available for College Credit (see pg. ii)

- Prerequisite:** *Fall* – Completion of a General Physics course and/or concurrent enrollment in AP Calculus BC or permission of the Science Division Chair.
Spring – Successful completion of first semester AP Physics C.
- Co-requisite:** AP Physics C Lab (SCI04102L/04103L) or permission of instructor.
- Credit:** 1.5 credits per semester
- Offered:** Fall/Spring Sequence

This calculus-based physics course forms the first part of the college sequence, normally extending over two or three semesters. Linear and Rotational Mechanics, Wave Motion, and Heat for the first semester, and Electricity, Magnetism, Optics and Thermodynamics for the second semester. Strong emphasis is placed on solving a variety of challenging problems with an emphasis on analysis in both the laboratory and classroom. Calculus is used freely in formulating principles and in solving problems. This course serves as the foundation for students whose career goals include the physical sciences or engineering, but has many applications to geo-physics, bio-physics and other interdisciplinary fields. Students will prepare for and are strongly encouraged to take both the College Board AP Physics C: Mechanics exam and the College Board AP Physics C: Electricity & Magnetism Exam in May.

*Ball State University offers 5 college credit hours each semester in PHYC 120 and 122 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

SCI04112 Electronics Fundamentals (CL)

- Prerequisite:** Advanced Algebra/Trig1/2 (MAT03001/03002)
- Co-requisite:** Electronics Fundamentals Lab (SCI4112L)
- Credit:** 1.5 cr.
- Offered:** Spring

An introductory course in electronics covering basic theory of DC and AC electrical circuits, electronic components, circuit design, and circuit construction methods. The major topics covered are basic electric circuits concepts and components, semiconductors and superconductors, applications of logic gates in computing, designing simple electronic circuits to perform tasks, representation and interpretation of electrical signals in time and frequency domains.

SCI04403 – Astrophysics I: The Sun & Stars (DC)

*Available for College Credit (see pg. ii)

- Prerequisite:** Algebra I
- Co-requisite:** Astrophysics I: The Sun & Stars Lab (SCI4403L)
- Credit:** 1.5 cr.
- Offered:** Fall

Students will be introduced to the science underlying modern stellar astronomy. The sky is full of amazing objects and astronomers use the properties of light and matter to better understand the currently unreachable expanse of the universe. The properties of the sun and stars reveal the processes that govern their birth, life, and death, revealing insights into the remnants they leave behind (such as white dwarfs, neutron stars, and blackholes!).

The course also includes lab experience, students will utilize multiple avenues to analyze astrophysical data with algebraic calculations and use of observational data to reveal natural physical laws that provide information about remote objects in space. There will also be the occasional required late evening sky observation (as weather permits) and the occasional field trip to the Ball State Planetarium (as scheduling permits). Students are not expected to know or have had prior experience using the programming language Python, a programming language will be used in the practical labs. These labs will have pre-written code for students to use and both beginners and experienced Python users are welcome.

*Ball State University offers 3 college credit hours to students in ASTRO 120 to students who complete this course. Refer to the Dual Credit section for details on enrollment and fees.

**Astrophysics I: The Sun & Stars is part of a two-course set. Completing this course and Astrophysics II: Galaxies & Cosmology will satisfy the graduation requirement of completing two (2) semesters of physics at the Indiana Academy.

SCIENCE: PHYSICS EMPHASIS (Continued)

SCI04404 – Astrophysics II: Galaxies & Cosmology (DC)

*Available for College Credit (see pg. ii)

Prerequisite:	Algebra I
Co-requisite:	Astrophysics II: Galaxies & Cosmology Lab (SCI4404L)
Credit:	1.5 cr.
Offered:	Spring

Students will be introduced to the physical processes that govern the structure and evolution of galaxies and the Universe. The course will take students on a journey through the history of the cosmos as we currently understand it and the amazing super-structures that shape the known universe. The evolution of the universe and the formation of galaxies, including the hypothetical blackhole star, will allow students to dive further into the many facets of galactic classification, the mystery behind active galactic nuclei (AGN), and current models of the end of the universe.

The course also includes a lab experience, capitalizing on the observational and experimental data that are used in modern galactic astronomy and cosmology research to reveal natural physical laws that provide information about remote objects in space. There will also be the occasional required late evening sky observation (as weather permits) and the occasional field trip to the Ball State Planetarium (as scheduling permits). Students are not expected to know or have had prior experience using the programming language Python, a programming language will be used in the practical labs. These labs will have pre-written code for students to use and both beginners and experienced Python users are welcome.

Astrophysics I: The Sun & Stars NOT required but recommended.

*Ball State University offers 3 college credit hours to students in ASTRO 122 to students who complete this course. Refer to the Dual Credit section for details on enrollment and fees.

**Astrophysics II: Galaxies & Cosmology is part of a two-course set. Completing this course and Astrophysics I: The Sun & Stars will satisfy the graduation requirement of completing two (2) semesters of physics at the Indiana Academy.

SCIENCE: CHEMISTRY EMPHASIS

CL College Level

DC Dual Credit

For students who have no credits in General Chemistry, a comprehensive chemistry test, covering the subject matter of the two semesters of General Chemistry at the Academy, will be given to those students attempting to place out of the lecture portion of the course. This test will include questions to satisfy the state chemistry standards and additional questions to satisfy the higher expectations of the Academy. The test will be given before classes start in the fall and may be taken only once.

There are two possible outcomes of this test:

- The student does not pass the exam, and thus takes General Chemistry
- The student does pass the exam, and thus can –
 - elect to not place out and thus take the General Chemistry course and that earned grade will appear on the transcript
 - use the spare credit to take another academy course. If this path is chosen, they will be required to take and pass both semesters of the lab portion of the General Chemistry course.
 - take AP Chemistry (if concurrently enrolled in AP Calculus/AB or higher)

Passing this comprehensive chemistry placement test [upon completion of the laboratory requirement], or a higher level class, will satisfy a student's survey chemistry course requirement for their Indiana Academy diploma.

SCI03201/03202 – Chemistry I: General Chemistry 1 & 2 (DC)

*Available for College Credit (see pg. ii)

Prerequisite: *Fall* – Algebra I and Geometry
Spring – Successful completion of first semester General Chemistry or permission of Science Division Chair.
Co-requisite: Chemistry I: General Chemistry Lab (SCI03201L/03202L) and Advanced Algebra/Trigonometry 1, 2 (MAT03001/03002) or higher.
Credit: 1.5 credits per semester
Offered: Fall/Spring Sequence

General Chemistry examines the concepts of the structure of matter, the states of matter, chemical bonding and reaction types, stoichiometry, equilibrium, acid-base theory, kinetics, thermodynamics, oxidation-reduction, and an introduction to organic chemistry. The course emphasizes chemical calculations and the mathematical formulation of principles. Laboratory work emphasizes both qualitative and quantitative experiences and introduces the use of technology in the lab. Not open to students who have credit in CHEM 101, 111.

*Ball State University offers 3 college credit hours in CHEM 100 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

SCI04204/04205 – AP Chemistry (DC)

*Available for College Credit (see pg. ii)

Prerequisite: *Fall* – Successful completion of two semesters (or equivalent) of General Chemistry or permission of instructor.
Spring – Successful completion of first semester AP Chemistry or permission of Science Division Chair.
Co-requisite: *Juniors* – AP Calculus AB (MAT04123/04124) or higher or permission and AP Chemistry Lab (SCI04204L/04205L)
Seniors – AP Precalculus SL (MAT03121/03122) or any 4000-level math course or permission and AP Chemistry Lab (SCI04204L/04205L)
Credit: 1.5 credits per semester
Offered: Fall/Spring Sequence

Advanced Placement Chemistry is an accelerated course designed to review and extend the concepts introduced in General Chemistry, and it is comparable to a course for science majors in freshman college chemistry. Advanced laboratory work is emphasized. This course is designed for students who hope to advance place in college chemistry and/or whose career goals include science, engineering or the medical sciences. Students will prepare for and are encouraged to take the AP Chemistry exam in May.

*Ball State University offers 4 college credit hours in CHEM 111 and 112 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

SCIENCE: LIFE SCIENCE EMPHASIS

CL College Level

DC Dual Credit

SCI04301/04302 – AP Biology (DC)

*Available for College Credit (see pg. ii)

- Prerequisite:** *Fall* – Successful completion of two semesters (or equivalent) of General Biology and General Chemistry or permission of instructor
Spring – Successful completion of first semester AP Biology or permission of the Science Division Chair.
- Co-requisite:** AP Biology Lab (SCI04301L/04302L)
- Credit:** 1.5 credits per semester
- Offered:** Fall/Spring Sequence

This Advanced Placement course provides an accelerated, comprehensive, and thorough overview of the field of biology in preparation for the AP Biology exam. The course covers biological chemistry, cell biology, Mendelian genetics, evolutionary theory and principles, and an overview of the diversity, structure and ecology of organisms. Laboratory activities follow the required AP Biology lab exercises and other lab activities. Students will prepare for and are encouraged to take the AP Biology exam in May.

*Ball State University offers 4 college credit hours in BIO 111 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

SCI04305/04306 – Biology II: Human Anatomy and Physiology (CL)

- Prerequisite:** *Fall* – One year biology
Spring – Successful completion of first semester Biology II: Human Anatomy and Physiology or permission of Science Division Chair.
- Co-requisite:** Biology II: Human Anatomy and Physiology Lab (SCI04305L/04306L)
- Credit:** 1.5 credits per semester
- Offered:** Fall/Spring Sequence

Using an integrated text, this course covers material in six parts, which include: levels of organization, support and movement, control and regulation, fluids and transport, environmental exchange, and the continuity of life. Clinical topics that relate to personal and family health concerns are interwoven with a consideration of the relationship of structure to function. The concepts of anatomical and physiological processes are explored so that not only those seeking careers in the health sciences may benefit from the course, but also those interested in the mechanics of the human body are challenged.

SCI04250 – Forensic Science (CL)

- Prerequisite:** 1-year course in Biology or Chemistry is recommended
- Co-requisite:** Forensic Science Lab (SCI4250L)
- Credit:** 1.5 credits
- Offered:** Fall

Forensic Science is a first course in the forensic application of both science and technology. Topics will be taught on a case history approach to expose students to “front-page” cases of past and present. This course will place major emphasis on exposing students to biological, chemical, and physical methods of analyzing crime scene evidence. Students will use information and evidence data from case histories and case readings, as well as the compilation of information from the internet, to explore and learn about the forensic applications of science and technology. Topics in this course will include: the history and development of forensic science, security of a crime scene and collection of physical evidence, trace evidence, fire investigations and explosives, fingerprints, firearms and tool marks, document examination, and computer forensics. This course will place a major emphasis on the newest and best methods to gather, analyze, and interpret data needed to solve all types of crimes. In addition, students will explore the disciplines of forensic science and college courses and majors necessary to obtain a career in the forensic sciences.

SCIENCE: LIFE SCIENCE EMPHASIS (Continued)

SCI04309 – Principles of Ecology (CL)

Prerequisite:	One year biology
Co-requisite:	Principles of Ecology Lab (SCI04309L)
Credit:	1.5 credits
Offered:	Fall

This course explores the ways in which organisms interact with their environment. Topics include physiological ecology, population ecology, life history, social ecology, population genetics and natural selection, species interactions, community structure and diversity, broad-scale ecology, ecosystem ecology, biogeography, and global ecology. Hands-on laboratory and field activities reinforce fundamental concepts.

SCI04310S – Biology II: Zoology (CL)

Prerequisite:	One year biology
Co-requisite:	Biology II: Zoology Lab (SCI04310L)
Credit:	1.5 credits
Offered:	Spring

Zoology is a comprehensive survey of the diversity found in Kingdom *Animalia*. This course addresses the issue of why such diversity occurs, and what factors influence and constrain it. Laboratory explorations of live and preserved specimens allow hands-on examination of the structure and behavior of animals.

SCI04313 – Biology II: Introduction to Nutrition (CL)

Prerequisite:	None
Co-requisite:	Biology II: Introduction to Nutrition Lab (SCI04313L)
Credit:	1.5 credits
Offered:	Fall

This course will explore the general principles of nutrition that are needed for optimal health. The chemical composition of the major macronutrients and micronutrients will be examined. Additionally, the physiology behind proper digestion and absorption of consumed nutrients as well as their use in cellular energy metabolism will be studied. For the laboratory component of the course, the class will learn to comprehend nutrition and food labels, utilize nutrition tracking tools, as well as perform hands-on activities to explore the chemical makeup of food molecules. Current topics in nutrition will be integrated into the course material, such as evaluating the efficacy of dietary trends and gaining helpful strategies to eat healthier as a high school student. This course is highly recommended for students who are interested in increasing their knowledge base about basic nutrition in order to make more informed decisions about leading a healthy lifestyle.

SCI04319 – Biology II: Human Genetics (CL)

Prerequisite:	One year biology
Co-requisite:	Biology II: Human Genetics Lab (SCI04319L)
Credit:	1.5 credits
Offered:	Spring

Human Genetics is an advanced Biology course emphasizing the inheritance of human traits. Specific topics include the inheritance patterns of genes, pedigree analysis, chromosomal aberrations, behavioral genetics, and genetic screening. Laboratory activities emphasize techniques used to detect and analyze genetic information.

SCI04321S2 – Biology II: Botany (CL)

Prerequisite:	One year Biology
Corequisite:	Biology II: Botany Lab (SCI4321L)
Credit:	1.5 credits
Offered:	Spring

This course explores the biology of plants. Topics include plant taxonomy, physiology, life history, genetics, natural selection, population and community ecology, species interactions, community structure and diversity, primary productivity and nutrient cycling, biogeography, and global carbon dynamics. Hands-on laboratory and field activities will include examination of plant tissues, cultivation of plants to investigate physiology and genetics, and characterization of natural plant communities on and near campus.

SCI04327/04328 – AP Environmental Science (DC)***Available for College Credit (see pg. ii)**

- Prerequisite:** *Fall* – One year biology
Spring – Successful completion of fall semester AP Environmental Science or permission of Science Division Chair
- Co-requisite:** AP Environmental Science Lab (SCI04327L/04328L)
- Credit:** 1.5 credits
- Offered:** Fall/Spring Sequence

The study of environmental science concerns itself with the interaction between humans and the ecosystems in which we live and work. The course focuses on the determination of environmental quality through a series of laboratory experiences dealing with soil, water, and air resources. There is a concentration on problems having to do with population, pollution, agriculture, resource management and land use. An integrated approach to the issues facing us is emphasized. The course will use a problem-based learning approach and will incorporate a service learning component. Students will prepare for and are encouraged to take the AP Environmental Science exam in May.

*Ball State University offers 3 college credit hours to students in NREM 101 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

FINE ARTS

Fine arts courses offered throughout the school year are commonly through Burris Laboratory School. Enrollment into Burris classes (BUR prefix) is subject to space availability. Burris courses meet 5 days a week and could conflict with other Academy choices.

FAR05110 – Social History of Art (CL)

Prerequisite: Not open to students with credit in History through Art and Architecture
Credit: 1 credit in Fine Arts
Offered: Spring

An introduction to the history of art and architecture, with a deliberate exposure to both pre-modern and non-Western cultures. Topics and regions covered may include prehistoric and primitive art, a survey of Western art traditions and ideas from Greco-Roman times to the present, and comparative treatments of the independent artistic perspectives of Africa, India, East Asia, and the Americas. There will be a significant independent research component, with individual students “curating” a proposed gallery show as their final project.

FAR05115 – Panel Breakdowns: The Art of Contemporary Comics (CL)

Prerequisite: None
Credit: 1 credit in Fine Arts
Offered: Spring

Students gain an appreciation of the specific history, form, and culture of modern long-form comics through in-depth engagement with representative and canonical works, developing skills and strategies for reading and analyzing visual-verbal texts through both formal and cultural lenses. In the 21st century, comics are a critically respected form, participating as a vital part of the contemporary artistic and cultural landscape. Highlighting contemporary trends and genres, this class offers an engaging survey of the culturally nuanced and formally complex nature of contemporary long-form comics.

FAR05116 – Making Meaning: The Art of Visual Semiotics (CL)

Prerequisite: None
Credit: 1 credit in Fine Arts
Offered: Fall

This course introduces students to the critical and creative field of visual semiotics—the study of how art and design express and communicate meaning through the use of signs—drawing on theories and practices from art history, communication, aesthetics, linguistics, and studio art. Taking on the identity of both critic and creator, students will develop skills in the semiotic interpretation of visual art and communication, articulate how semiotic theories inform creative practices, and produce a portfolio of their own art and design that demonstrates a semiotically-informed ability to communicate through, and instill meaning in, visual forms. No previous art experience is necessary—simply curiosity and a willingness to experiment.

MUSIC

ACADBAND/ACADBANDS2 – Advanced Concert Band

Prerequisite: Beginning and Intermediate Concert Band (Recommended)

Credit: 1 credit per semester. The nature of this course allows for successive semesters of instruction at an advanced level provided that defined proficiencies and content standards are utilized.
Counts as a Directed Elective or Elective for all diplomas.
Fulfills a Fine Arts requirement for the Core 40 Academic Honors Diploma.

Offered: Fall (ACADBAND) and Spring (ACADBANDS2)

Advanced Concert Band is based on the Indiana Academic Standards for High School Instrumental Music. This course provides students with a balanced comprehensive study of music through the concert band, which develops skills in the psychomotor, cognitive, and affective domains. Ensemble and solo activities are designed to develop elements of musicianship including tone production, technical skills, intonation, music reading skills, listening skills, analyzing music, studying historically significant styles of literature, and integration of other applicable disciplines. Experiences include improvising, conducting, playing by ear, and sight-reading. Students develop the ability to understand and convey the composer's intent in performance of music. Time outside of the school day may be scheduled for rehearsals and performances. A limited number of public performances may serve as a culmination of daily rehearsal and musical goals. Students are required to participate in performance opportunities outside of the school day that support and extend learning in the classroom.

BURCHOIR/BURCHOIRS2 – Advanced Chorus

Prerequisite: Beginning and Intermediate Chorus (Recommended)

Credit: 1 credit per semester. The nature of this course allows for successive semesters of instruction at an advanced level provided that defined proficiencies and content standards are utilized.
Counts as a Directed Elective or Elective for all diplomas.

Offered: Fall (BURCHOIR) and Spring (BURCHOIRS2)

Advanced Chorus is based on the Indiana Academic Standards for High School Choral Music. Students taking Advanced Chorus develop musicianship and specific performance skills through ensemble and solo singing. This class includes the study of quality repertoire in the diverse styles of choral literature appropriate in difficulty and range for the students. Chorus classes provide opportunities for performing, creating, and responding to music. Students develop the ability to understand and convey the composer's intent in performance of music. Time outside of the school day may be scheduled for rehearsals and performances. A limited number of public performances may serve as a culmination of daily rehearsal and musical goals. Students are required to participate in performance opportunities outside of the school day that support and extend learning in the classroom.

BUSTRING/BUSTRINGS2 – Advanced Orchestra (Strings Only)

Prerequisite: Beginning and Intermediate Orchestra (Recommended)

Credit: 1 credit per semester. The nature of this course allows for successive semesters of instruction at an advanced level provided that defined proficiencies and content standards are utilized.
Counts as a Directed Elective or Elective for all diplomas.

Offered: Fall (BUSTRING) and Spring (BUSTRINGS2)

Advanced Orchestra is based on the Indiana Academic Standards for High School Instrumental Music. Students in this ensemble are provided with a balanced comprehensive study of music through the orchestra, string and/or full orchestra, which develops skills in the psychomotor, cognitive, and affective domains. Ensemble and solo activities are designed to develop and refine elements of musicianship including tone production, technical skills, intonation, music reading skills, listening skills, analyzing music, studying historically significant styles of orchestral literature, and integration of other applicable disciplines. Experiences include improvising, conducting, playing by ear, and sight-reading. Students develop the ability to understand and convey the composer's intent in performance of music. Time outside of the school day may be scheduled for rehearsals and performances. A limited number of public performances may serve as a culmination of daily rehearsal and musical goals. Students are required to participate in performance opportunities outside of the school day that support and extend learning in the classroom.

OTHER COURSES

CL College Level

DC Dual Credit

COLLOQUIUM

COL5000 – Colloquium (CL)

Prerequisite: None
Credit: 1 credit
Offered: Fall

Colloquium is a longstanding and distinctive feature of an Indiana Academy education. A mandatory class for all entering students in their first Fall semester, the Colloquium is an essential introduction to their personal development at the Indiana Academy and the expectations of intellectual exploration, which include learning to formulate thoughtful inquiry, to connect and challenge ideas or concepts, and to think critically, analytically, and philosophically. Through this shared experience, students gain confidence and become more effective thinkers and communicators, growing both as individuals and as a community through activities of persistent questioning, rational discussion, and reasoned argumentation. Active class participation is essential, so the Colloquium experience includes out-of-the-classroom activities, such as events and opportunities on the Ball State University campus.

Colloquium is a team-taught course of four separate month-long modules, each led by a different instructor. Students rotate between all four of these acts over the course of the semester, so as to learn information from a variety of sources via different teaching approaches and to assist students in developing different aptitudes. These four modules are:

1. Salon: An introduction to the skills and discipline of small-group discussion.
2. Oratory: An introduction to public speaking and persuasive argument
3. Drama: An introduction to acting and performance as communication skills
4. Movement: An introduction to non-verbal communication and building physical confidence.

EXPERIENTIAL STUDY

CL College Level

DC Dual Credit

RESEARCH

RES3000S/3001S – Research Science I & II (CL)

Prerequisite: Spring – Successful completion of first semester Research Science I

Credit: 1 credit per semester

Offered: Fall/Spring Sequence

In the first semester of this course the basic principles of research are covered, and the student is expected in the second semester to develop a research project which is to be presented through a written document and oral presentation. Students interested in developing an original in-depth research idea are encouraged to submit a grant proposal. Students are encouraged to continue their project for a second semester and present it at one of the venues available.

APPRENTICESHIPS

APR3101/3201 / APR3102/3202 – Apprenticeship Science Laboratory Assistant

Credit: .5 (APR3101/3201) or 1 (APR3102/3202) credit per semester

Offered: Fall and/or Spring

The Indiana Academy offers academic credit to students who are interested in gaining experiential activity working in scientific labs with an Academy faculty member, a BSU professor, in the community, or at another location. A minimum of 60 hours must be completed, per semester, to earn half a credit or 120 hours for a full credit (science elective). Work hours may include weekend or evening hours but must follow residential check-ins, curfews, and other residential governing policies when applicable. Students are also responsible for securing their own lab apprenticeship sites.

The lab science apprenticeship offers students the ability to explore interests in a natural and/or physical lab science (such as biology, life science, chemistry, physics, kinesiology, among others), through collaboration with BSU faculty and affiliated research scientists and graduate assistants. The culmination of a lab science apprenticeship program should ideally present itself in the form of a scholarly presentation (poster or paper) or a manuscript submitted to a scientific journal for review and potential publication.

TAS1/S2 / TAS15/S25 – Teaching Assistant

Credit: .5 (TAS15/S25) or 1 (TAS1/S2) credit per semester

Offered: Fall and/or Spring

The Indiana Academy offers academic credit to students who are interested in gaining experiential activity working alongside an Academy faculty member as a teacher apprentice. A minimum of 60 hours must be completed, per semester, to earn half a credit or 120 hours for a full credit (elective). Work hours may include weekend or evening hours but must follow residential check-ins, curfews, and other residential governing policies when applicable.

The Teacher apprenticeship program is designed with mentorship and professional development in mind. Students will have the unique opportunity to work alongside Academy faculty on a variety of activities. As such:

1. The faculty members have range to view this arrangement as a needed support for in-class instruction, course management, or mentorship program and, ideally, all three components can be at work simultaneously.
2. Faculty cannot have TAs instruct but may employ them to assist in grading items that do not require professional expertise and judgement (aka multiple choice, True/False, or anything with answer keys).
3. Faculty can employ TAs to run study sessions and exam preps for classes if needed.
4. Faculty can employ TAs to help with class management such as distributing materials, shepherding group work, among other related activity)

INTERSHIPS

INT100/102 / INT101/103 – Internship

Credit: .5 (INT100/102) or 1 (INT101/103) credit per semester

Offered: Fall and/or Spring

The Indiana Academy will be offering academic credit for students who are interested in working at either a site on campus, in the community, or at another location. A minimum of 60 hours must be completed for during the internship to earn half a credit or 120 hours for a full credit (elective). Work hours may include weekend or evening hours. Some job sites may require a background check, drug testing, immunizations or other types of training before work can begin. Students should plan to complete these requirements before starting their Internship. Students are responsible for securing their own internship sites as well as their own transportation!

The internship program matches students with professionals to allow an exploration experience in the student's area of interest. The student is expected to complete actual projects. The internship experience should not be along the lines of errand running or other types of busy work.

For more information on internships please contact Dr. Olufowote.

DIRECTED STUDY

Through a Directed Study, students form linkages with instructors who have expertise in an area of interest for them that cannot be acquired through current courses in the Academy curriculum. If students are interested in pursuing a Directed Study, they should first contact the particular instructor who they wish to study with to determine if the instructor is willing. If the instructor agrees to the Directed Study, then the instructor and the student must complete the Directed Study Proposal form on the Indiana Academy website at www.bsu.edu/academy/forms. No student may take a Directed Study if their need may be met through an Indiana Academy course offering unless an explicit need or conflict can be demonstrated. Students wishing to enroll in a Directed Study must be at least a second semester junior. The Directed Study must be approved by the instructor, Division Chair, and Director of Academic Affairs. This approval process automatically begins once the proposal is submitted online.