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## Introduction

Whenever minimum enrollment requirements are satisfied and Academy resources allow, the courses described in this catalog are offered. Information contained in course descriptions is subject to change in accord with the procedures for curriculum revision outlined in Curriculum and Academic Policies and Procedures of the Indiana Academy for Science, Mathematics, and Humanities.

## Definitions

Course Title Codes Refers to the type of course:
CL College Level - Uses a college textbook and syllabus
CP College Prep - Uses a high school textbook and syllabus
DC Dual Credit - available for Ball State University credit (see page ii)
XC Exploratory Course - studies a specific topic and is a mixture of high school and college levels

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

Co-requisite refers to courses that are required concurrently.
Credit refers to the successful completion of a one-semester course that meets as a class a minimum of one hundred and fifty minutes per week.

Permission 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 and other relevant information by the Director of Academic Affairs, the appropriate academic division chair, or their designees.

## DUAL CREDIT COURSES

Dual Credit Courses (designated as "DC" in the course catalog descriptions) are Indiana Academy courses taught by Academy instructors and have been recognized as equivalent to a Ball State University course. 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 on page iii, all courses underlined will cost $\$ 25$ per college credit hour. These courses are on the state core 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 the Transfer Evaluation System from CollegeSource at tes.collegesource.com. Applications, directions for enrollment, and other information on dual credit courses can be obtained from the Guidance Office.

## 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 the first week of the semester and lasts approximately 5 days. Enrollment for spring dual credit courses will start in December and finish the opening week of classes in January. You must enroll during these times if you wish to receive dual credit. Ball State University does 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. 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 labeled "enroll in spring only" are the fall and spring semesters of the Academy class. The two semesters together are equal to one semester of the BSU equivalent class. The dual credit grade is an average of the two semester grades of the Academy class.
5. Enrollment for these courses is done in the enrollment period in December and early January.

## DUAL CREDIT COURSES (Continued)

| Academy course number and title |  | Ball State University course |
| :---: | :---: | :---: |
| FRN1A | Beginning French 1 (Fall) | 4 cr . hrs. in FR 101 Beginning French 1 (enroll fall) |
| FRN1B | Beginning French 2 (Spring) | 4 cr . hrs. in FR 102* Beginning French 2 (enroll spring) |
| FRN2A/2B | Intermediate French 2 | 3 cr . hrs. in FR 201 Intermediate French 1 (enroll fall) |
| FRN3A/3B | Advanced French 3 | 3 cr . hrs. in FR 202 Intermediate French 2 (enroll fall) |
| GER1A | Beginning German 1 (Fall) | 4 cr . hrs. in GER 101 Beginning German 1 (enroll fall) |
| GER1B | Beginning German 1 (Spring) | 4 cr . hrs. in GER 102* Beginning German 2 (enroll spring) |
| GER2A/2B | Intermediate German 2 | $3 \mathrm{cr} . \mathrm{hrs}$. in GER 201 Intermediate German 1 (enroll fall) |
| SOC203 | American History 1492-1876 | 3 cr. hrs. in HIST 201 U.S. History 1492-1876 (enroll fall) |
| SOC204 | American History 1877-Present | 3 cr . hrs. in HIST 202 U.S. History 1877-Present (enroll spring) |
| SOC05130 | The West in the World | 3 cr . hrs. in HIST 150 The West in the World (enroll fall) |
| MAT04005 | Calculus | 3 cr . hrs. in MATH 132 Brief Calculus (enroll fall) |
| MAT04123/04124 | AP Calculus AB 1,2 | 4 cr . hrs. in MATH 165 Calculus 1 (enroll fall) |
| MAT04133 | AP Calculus BC 1 | 4 cr . hrs. in MATH 165 Calculus 1 (enroll fall) |
| MAT04134 | AP Calculus BC 2 | 4 cr. hrs. in MATH 166 Calculus 2 (enroll fall or spring) |
| MAT04514 | Statistics | 3 cr . hrs. in MATH 181 Elem. Prob. Stats (enroll fall or spring) |
| MAT04515 | Quantitative Reasoning | 3 cr . hrs. in MATH 125 Quantitative Reasoning (enroll spring) |
| MAT04825 | AP Statistics | 3 cr . hrs. in MATH 181 Elem. Prob. Stats (enroll spring) |
| MAT04832 | Linear Algebra | 4 cr . hrs. in MATH 217 Linear Algebra (enroll fall) |
| MAT04833 | Multivariable Calculus | 4 cr . hrs. in MATH 267 Calculus 3 (enroll spring) |
| MAT04834 | Differential Equations | 3 cr . hrs. in MATH 374 Differential Equations (enroll spring) |
| CMP04105 | Web Page Design | 3 cr . hrs. in CS 110 Intro to CS \& Web Prog (enroll spring) |
| CMP04511 | AP Computer Science A 1 | 4 cr . hrs. in CS 120 Computer Science 1 (enroll fall) |
| CMP04512 | AP Computer Science A 2 | 4 cr . hrs. in CS 121* Computer Science 2 (enroll spring) |
| SC103201/03202 | General Chemistry 1, 2 | 3 cr . hrs. in CHEM 100 People and Chemistry (enroll fall) |
| SCIO4204 | AP Chemistry 1 | 4 cr . hrs. in CHEM 111 General Chemistry 1 (enroll fall) |
| SCIO4205 | AP Chemistry 2 | 4 cr . hrs. in CHEM 112* General Chemistry 2 (enroll spring) |
| SCI04301 | AP Biology 1 | 4 cr . hrs. in BIO 111 Principles in Biology 1 (enroll fall) |
| SCIO4302 | AP Biology 2 | 4 cr . hrs. in BIO 112* Principles in Biology 2 (enroll spring) |
| SCIO4304 | Microbiology | 5 cr . hrs. in BIO 113 Microbio for Health Sciences (enroll fall) |
| SCIO4328 | AP Environmental Science | 3 cr . hrs. in NREM 101 Environment \& Society (enroll spring) |
| SCI03101/03102 | General Physics 1,2 | 3 cr . hrs. in PHYC 100 Conceptual Physics (enroll fall) |
| SCIO3111/03112 | AP Physics I | 4 cr. hrs. in PHYC 110 General Physics 1 (enroll fall) |
| SCI03113/03114 | AP Physics II | 4 cr . hrs. in PHYC 112 General Physics 2 (enroll fall) |
| SCIO4102 | AP Physics C 1 | 5 cr . hrs. in PHYC 120 General Physics 1 (enroll fall) |
| SCIO4103 | AP Physics C 2 | 5 cr . hrs. in PHYC 122* General Physics 2 (enroll spring) |
| SCIO4406 | The Solar System | 3 cr . hrs. in ASTR 100 Intro Astro: Sol Sys \& Bey (enroll fall) |
| SCIO4407 | Galactic Astronomy | 3 cr . hrs. in ASTR 120 The Sun and Stars (enroll spring) |
|  | ment in the first | nrollment in the second course |

## DUAL CREDIT COURSES (Continued)

Dual Credit Courses (designated as "DC" in the course catalog descriptions) are Indiana Academy courses taught by Academy instructors and have been recognized as equivalent to an Ivy Tech course. 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.


## AP CLASSES / BALL STATE UNIVERSITY COURSES

## 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. The Academy offers all available AP Science and AP Math courses. 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. 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 shall receive college credit in that discipline towards their degree if they attend any Indiana public institution of higher education; this includes all twoand four-year schools and any accompanying satellite campuses.

## 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 (3 days/week) | 1.00 |
| 3 (4 days/week) | 1.25 |
| 4 | 1.25 |
| 5 | 1.50 |

## GRADUATION REQUIREMENTS

## Graduating Classes of 2023-2024 and 2024-2025 (26.5 Academy Credits)

## Students must carry a minimum of $\mathbf{5 . 5}$ credits each semester.

## High School Substitutions

Courses that are not taught at the Indiana Academy which would have traditionally been taken by students as $9^{\text {th }}$ or $10^{\text {th }}$ graders may be taken during summer school or through other arrangements. These classes include but are not limited to: PE, Health, Fine Arts, Geometry, Algebra 2, and World Civilization/World History. Approval for these substitutions should be arranged with the Director of Academic Affairs.

## Science: 6 Credits Required

- Two credits in each two-semester sequence of General Biology, General Chemistry, and General Physics, or equivalent college-preparatory courses as determined by the Science Division Chair.
- Integrated Chemistry/Physics courses taken prior to coming to the Academy are not accepted for either Chemistry or Physics requirements by the Academy.
- Four credits in Laboratory Sciences must be earned from the Academy.
- A student may petition to have a previous laboratory science course accepted to replace a laboratory science course that would otherwise be taken here.

Math: 8 Credits Required

- Two credits in Algebra 1, two in Geometry, two in Algebra 2, and two in courses beyond Algebra 2.
- Three credits must be earned from the Academy.
- At least one credit in mathematics must be earned each year.

English: 8 Credits Required

- One credit in American Literature (Fall semester of first year).
- One credit in World Literature (Spring semester of first year).
- Three credits must be earned from the Academy.
- One elective credit must be earned from the Academy.


## Social Studies: 6 Credits Required

- Two in World History, two in U.S. History, one in Government, and one in Economics.
- Three credits must be earned from the Academy.


## World Languages: 6 or 8 Credits Required

- If taking one language, a student must successfully complete six credits in that language.
- If taking two languages, a student must earn a total of eight credits with four credits in each language.

Fine Arts: 2 Credits Required
Can be obtained from home high school, online high school course providers, Burris, BSU, or the Academy.

## GRADUATION REQUIREMENTS (Continued)

Health: 1 Credit Required
Can be obtained from home high school, online high school course providers, or BSU (Health Science - HSCl 160). The Academy does not offer a health course.

## Phys. Ed.: 2 Credits Required

Can be obtained from home high school, online high school course providers, or BSU (PFW classes with activity component). The Academy does not offer any PE courses.

Computing: . 5 Credit Required
Must take CMP03401 (Digital Applications) at the Academy or TEST OUT on the Digital Applications test.

Colloquium: 1 Credit Required

- 5 credit Junior year (taken Fall semester).
- . 5 credit Senior year (taken Spring semester).

May Term: 1 Credit Required

- 5 credit Junior year.
- 5 credit Senior year.
- Must be earned while attending the Academy.


## Additional Requirements for the Academic Honors Diploma

Earn a grade of a " C " or better in courses that will count toward the diploma.
Complete one of the following:
A. Earn 4 credits in 2 or more AP courses and take corresponding AP exams.
B. Earn 6 verifiable transcripted college credits in dual credit courses from the approved dual credit list.
C. Earn two of the following:

1. A minimum of 3 verifiable transcripted college credits from the approved dual credit list,
2. 2 credits in AP courses and corresponding AP exams,
3. 2 credits in IB standard level courses and corresponding IB exams.
D. Earn a composite score of 1250 or higher on the SAT and a minimum of 560 on math and a 590 on the evidence-based reading and writing section.
E. Earn an ACT composite score of 26 or higher and complete the written essay component.
F. Earn 4 credits in IB courses and take corresponding IB exams.
 Indions
parationtis

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 <br> 2 Learn \& Demonstrate Employability Skills <br> (3) <br> Postsecondary-Ready Competencies

## DIPLOMA REQUIREMENTS



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 <br> 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

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.

Service-Based Experience Integrates academic study withsocial, economic, and societal issues, and collaborative efforts between students, schools, and community partners.

2 Work Toward Completion of One of the Experiences Below


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.

## REQUIRED COURSES

Every junior must take American Literature the fall semester and World Literature the spring semester semester or take English-Human Struggles their first three semesters. Through the integrated Human Struggles courses, students earn both their required English and Social Studies credits..

## ENG03101 - American Literature (CL)

| Prerequisite: | None |
| :--- | :--- |
| Credit: | 1 credit |
| Offered: | Fall |

The American Literature course begins with literature of the New World and ends with contemporary period literature. There is an emphasis on critical thinking, close reading, and the development of writing skills. The course is organized by theme, by genre, or by literary and historical period, depending on the approach of the teacher. Students will have a wide variety of writing assignments, opportunities for oral participation, and other activities connecting literature, history, and culture.

## ENG04221 - World Literature (CL)

Prerequisite:
Credit:
Offered: Spring
This course focuses on the study of poetry, drama, and prose produced by authors of various nationalities of the Western and Eastern worlds from the ancient period to the present. Students explore literary movements and intellectual trends with a continuing emphasis on critical thinking, close reading, and the development of writing skills. They also develop essays and projects that call upon the processes of analysis, synthesis, and evaluation and have opportunities for oral participation. The course is organized by theme, by genre, or by literary and historical period depending on the approach of the teacher.

## ELECTIVES

Dramatic Literature

## ENG05140 - Global Cinema (CL)

Prerequisite:
Credit: 1 credi
Offered: Fall or Spring
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 nonfictions 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.

## ELECTIVES <br> Themes in Literature

## ENG05101 - Women's Literature (CL)

| Prerequisite: | None |
| :--- | :--- |
| Credit: | 1 cr. |
| Offered: | Fall |

Students in this course study literature by and about women beginning with ancient works (Vedic Hymns, Sumerian fertility supplications and songs) and culminating with contemporary novels that explore adolescent and adult women's struggles for voice and identity within family, community, and history. Through the theme of women's identity, the course examines different writers and genres using written composition, oral participation, and critical thinking to engage in an ongoing investigation and inquiry into the myths and mysteries associated with the experience of being a woman.

## ENG05109 - Lost Generation Literature (CL)

Prerequisite:
1 credit
Offered: Fall
Gertrude Stein told Ernest Hemingway, "You are all a lost generation," labeling the expatriate writers who came to Paris after World War I. Lost Generation Literature focuses on the theme of disenchantment brought about by the meaningless end of the world's first total war; the resulting materialistic boom and its following national extravagances, corruptions, and decadence; the hypocrisies of prohibition; and the spiritual bankruptcy of the "Jazz Age" or the "Roaring Twenties." Students examine novels, short stories, and poetry using written composition, oral participation, and critical thinking to engage in ongoing investigation and inquiry of such twentieth-century literary giants as Stein, Anderson, Hemingway, Fitzgerald, Pound, Joyce, Eliot, Williams, and e.e. cummings. Women writers of the Left Bank whose works were shadowed by the more popular male writers during the twenties are now anthologized and add a new dimension to this course. As their final exam, students simulate Parisian salons and become the famous writers, artists, musicians, dancers, fashion designers, and publishers who frequented them.

## 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.

## ENG05145 - Tolkien's Middle Earth and Beyond (CL)

Prerequisite:
Credit: $\quad 1$ credi
Offered: Spring
Take a deep dive into the life and works of one of the best selling authors of all time. Students will study Tolkien's life and letters to understand how his professional career as a philologist and medievalist influenced and shaped the sub-creation of Middle Earth. In addition to reading his most famous works--The Hobbit, The Lord of the Rings, and the Silmarillion--students will study significant essays and short stories such as Roverandom, Farmer Giles of Ham, Leaf by Niggle, and "On Fairy Stories." These works allow students to reflect on universal themes of good and evil, death and immortality, and myth and memory. Assignments will include reading and discussion of texts, written analyses, formal presentations, and a creative project.

## 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.

## ELECTIVES

Other

## ENG05113S1/05113S2 - Creative Writing (CL)

Prerequisite:
Note:
Credit:
Offered: Fall or Spring
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.

## ENG05123/05124 - AP English Language and Composition (CL)

Prerequisite: Permission of English Department. In keeping with College Board policy, this course is open to students who are academically prepared for it. Students prepared to benefit from this rigorous course have already shown an excellent work ethic and strong analytic and academic writing ability.
Credit: $\quad 1$ credit
Offered: Fall/Spring Sequence
This year-long course, which prepares students to take the AP English Language and Composition exam, requires students to compose timed, evidence-based analytic and argumentative essays, written in response to College Board prompts, as well as to complete many informal writing exercises. Students will also conduct research, work on grammar and style, and learn to analyze the rhetorical strategies in visual texts and in non-fiction writing from many disciplines and historical periods.

## 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 <br> 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.

## THIS COURSE IS COUNTED AS AN ACADEMY ELECTIVE COURSE.

## HUM02999 - Writing Lab (CP)

| Prerequisite: | Teacher Recommendation |
| :--- | :--- |
| Credit: | .5 credit |
| Offered: | Quarter 1 or 2 |

This course emphasizes essential structural and stylistic elements of composition, especially the formulation of a thesis statement, development of a theme and argument, and relevant use of logic, detail, textual illustration, and persuasive language. Issues of clarity, grammar, and form will be incorporated. This course does not count as an English credit but may be used for elective credit.

## XC Exploratory Course

## REQUIRED COURSES

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.

## ELECTIVES

Topics in History

## SOC05130 - The West in the World (DC)

*Available for College Credit (see pg. ii)

```
Prerequisite: None
Credit: \(\quad 1\) credit
Offered: Fall
```

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.

## SOC05141 - Appalachian Regional History (CL)

## Prerequisite: None <br> Credit: $\quad 1$ credit <br> Offered: Spring

This course is a survey of the history of Appalachia, with particular focus on Southern and Central Appalachia. The course focuses on Appalachia's three phases of development: traditional society in the 19th century, the industrialization of the region in the early 20th century, and the problems facing contemporary Appalachia, with a specific focus on migration from the region to Indiana and the Midwest after World War II.

## SOC05148 - The American Civil War and Reconstruction Era, 1850-1877 (CL)

Prerequisite:
Credit:
1 credit
Offered: Spring
The American Civil War represents the seminal event in the nation's history, and the period of Reconstruction that followed it profoundly shaped the war's impact and legacy. This course will give students a firm grasp of the events, people, and issues that led the nation to war. It will address how the war unfolded, explore the positive changes experienced by freedmen during the initial stages of Reconstruction, and discuss how and why the nation eventually reunified at the expense of African-American political and civil rights. The course will cover military, political, social, and economic factors in the causes of the war and Reconstruction. As students explore the topic of the American Civil War era, they will develop historical research skills using both primary and secondary sources.

## ELECTIVES

Topics in Social Science

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

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

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: Fall or 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.)

## ECONOMICS

## ECON116 - Survey of Economics (CL)

Prerequisite: Two credits of American History or Senior status
Credit: $\quad 1$ credit
Offered: Fall or Spring
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.

## ECON201 - Elementary Microeconomics (CL)

Prerequisite: Two credits of American History or Senior status
Credit: $\quad 1$ credit
Offered: Spring
A study of why people specialize as producers and exchange what they produce with others. Includes analysis of how market structure affects prices. Discusses the issue of whether self-interested economic behavior promotes or hinders society.
Recommended for students interested in pursuing economics, business or related studies in college

CP College Prep
DC Dual Credit
XC Exploratory Course
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 each in FR 101 \& FR 102 to students who complete 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: $\quad 1.25$ 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.

## FRN3A/3B - Advanced French 3 (DC)

*Available for College Credit (see pg. ii)
Prerequisite: Fall - Placement, successful completion of FRN2B, or permission of instructor Spring - Successful completion of FRN3A or permission of instructor
Credit: $\quad 1.25$ credits per semester
Offered: Fall/Spring Sequence
This course continues to build upon the fundamental elements of the language through extended vocabulary and more complex grammatical structures. Students will refine listening, speaking, reading, and writing skills in a cultural context. Using authentic resources, students will expand their vocabulary and grammar while studying aspects of different cultures. Students will participate in meaningful class discussions in French about a variety of topics. By the end of the course, students should be able to speak, read, write and comprehend French with increased proficiency while demonstrating a cultural understanding of the Francophone world.
*Ball State University offers 3 college credit hours in FR 202 to students who complete FRN3A and 3B. 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.

| 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: $\quad 1.25$ 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.

Third-year German is not offered at the Academy. To fulfill their language requirement students can take third-year German at Ball State. The Academy is not responsible for fees associated with courses beyond third-year German.

## RUS1A/1B - Beginning Russian 1 (CL)

| Prerequisite: | Fall - None |
| :--- | :--- |
| Spring - Successful completion of RUS1A or permission of instructor |  |
| Credit: | 1.25 credits per semester |
| Offered: | Fall/Spring Sequence |

This course focuses on the skills required for speaking, reading, writing and comprehending Russian. Particular attention is given to acquiring an understanding of the fundamental grammar structure of Russian, together with pronunciation, intonation, and mastery of the Cyrillic alphabet. In addition, students are expected to utilize communication skills such as responding to and giving oral directions and commands, understanding simple conversations, participating in discussions and conversations on an elementary level in the target language. At the conclusion of the $1 \mathrm{~A} / 1 \mathrm{~B}$ sequence, students will have learned all six cases and their inflectional endings, as well as basic vocabulary necessary for everyday communication. Additionally, students will be exposed to Russian literature and early Russian history with the ultimate goal of understanding the Russian people and their rich heritage.

## RUS2A/2B - Intermediate Russian 2 (CL)

Prerequisite: Fall - Placement, successful completion of RUS1B, or permission of instructor Spring - Successful completion of RUS2A or permission of instructor
Credit:
1.25 credits per semester

Offered: Fall/Spring Sequence
This course presumes facility in the basic skills and knowledge developed in Russian $1 \mathrm{~A} / 1 \mathrm{~B}$, and begins with a review of the six cases and verbal aspect. Students will be introduced to vocabulary that enables them to converse about the weather, make telephone calls, give directions, discuss adaptations of literary works and movies, among many other useful and everyday topics. Increased attention is paid to the more complex grammar structures that students are expected to utilize in their written work as well as in their conversations. In addition, students will continue to learn about Russian culture, history, geography, and literature. Students will be asked to read the literature (or adaptations from famous works) in the original language. By the end of the 2A/2B sequence, students should have gained a satisfactory understanding the Russian language and the Russian way of life.

## SPN2A/2B - Intermediate Spanish 2 (CL)

Prerequisite: Fall - Placement, successful completion of SPN1B, or permission of instructor Spring - Successful completion of SPN2A or permission of instructor
Credit: $\quad 1.25$ 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.

## 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.
*Ivy Tech Community College offers 3 college credit hours per semester in SP 101 and 102 to students who complete SPN3A and 3B. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

## MAT02999/03000 - Geometry 1, 2 (CL)

| Prerequisite: | Fall - Successful completion of Algebra I |
| :--- | :--- |
|  | Spring - Successful completion of Geometry 1 or permission of Math and Computer Science 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 <br> Spring - Successful completion of Advanced Algebra/Trigonometry 1 or permission of Math and Computer <br>  <br> Science 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.

## MAT03101/03102 - Precalculus 1, 2 (DC)

*Available for College Credit (see pg. ii)

## Prerequisite:

Fall - Placement
Spring - Successful completion of Precalculus 1 or permission of Math and Computer Science Division Chair
Credit: $\quad 1$ credit per semester
Offered: Fall/Spring Sequence
This course provides a thorough, careful study of basic precalculus topics. Topics include linear and quadratic functions, polynomial functions, inequalities, graphs of functions, exponential and logarithmic functions, trigonometric functions and equations, and triangle trigonometry.
Successful completion of this course will generally be followed by enrollment in courses such as Calculus, Statistics, or Quantitative Reasoning, or the equivalent college course. Students who excel in the course may be considered for enrollment in Advanced Placement Calculus AB or the equivalent college course.
*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.

## MAT03131/03132 - Advanced Placement Precalculus 1, 2 (DC)

*Available for College Credit (see pg. ii)

| Prerequisite: | Fall - Placement |
| :--- | :--- |
|  | Spring - Successful completion of AP Precalculus 1 or permission of Math and Computer Science Division Chair |
| Credit: | 1 credit per semester |
| Offered: | Fall/Spring Sequence |

This course 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, exponential, logarithmic and trigonometric functions and their graphs. Topics for the second semester include triangle trigonometry, polar coordinates, vectors, sequences and series, analytic geometry, parametric equations, and matrices. Elementary proof techniques will be employed throughout the course.

Successful completion of this course will generally prepare students for Advanced Placement Calculus AB or BC or the equivalent college course.
*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.

Prerequisite: Precalculus 2 (MAT03102) or AP Precalculus 2 (MAT03132)
Credit: $\quad 1$ credit
Offered: Fall
This course is an introduction to differential and integral calculus. Topics include limits, continuity, derivatives and definite integrals. The emphasis will be on applications and writing, rather than on theory.

Not open to students with credit in Advanced Placement Calculus.
*Ball State University offers 3 college credit hours in MATH 132 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 2 (MAT03132) or Precalculus 2 (MAT03102) with teacher recommendation, or placement |
| :--- | :--- |
|  | Spring - Successful completion of AP Calculus AB 1 or permission of Math and Computer Science Division Chair |
| Credit: | 1 credit per semester |
| Offered: | Fall/Spring Sequence |

This course covers the College 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 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 2 (MAT03132) with teacher recommendation, or placement
Credit: $\quad 1.25$ 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.

## MAT04134 - 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 or Spring |

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.

Prerequisite: Algebra II<br>Credit: $\quad 1$ credit<br>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 (DC)

*Available for College Credit (see pg. ii)

| Prerequisite: | Algebra II or permission of Math and Computer Science 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.
*Ball State University offers 3 college credit hours in MATH 125 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

## ADVANCED ELECTIVES

## MAT04522 - Discrete Mathematics (CL)

Prerequisite: AP Precalculus 2 (MAT03132) or the equivalent
Credit: 1 credit
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.

## MAT04825 - AP Statistics (DC)

*Available for College Credit (see pg. ii)

| Corequisite: | AP Precalculus 2 (MAT03132) or permission of Math and Computer Science 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.

Prerequisite: AP Calculus AB 2 (MAT04124) or AP Calculus BC 1 (MAT04133)
Credit: $\quad 1.25$ credits
Offered: Fall
This course meets four days a week and includes the solution of linear systems, vector equations, linear transformations in twoand 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/CS Division Chair

## Credit: $\quad 1$ 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; $n^{\text {th }}$-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.

## CL College Level

CP College Prep
DC Dual Credit

## XC Exploratory Course

## CMP3401- Digital Applications (CL)

Prerequisite: None
Credit: .5 credit
Offered: Quarter 1
Digital Applications prepares students to use technology in an effective and appropriate manner in school, in a job, or in everyday life. Students develop skills related to word processing, spreadsheets, presentations, and communications software and may use highly specialized or individualized technology or software. Students learn what it means to be a good digital citizen and how to use technology, including social media, responsibly. Students expand their knowledge of how to use digital devices and software to build decision-making and problem-solving skills.

## CMP4105 - Web Page Design (DC)

*Available for College Credit (see pg. ii)
Prerequisite: Digital Applications or credit on Computer Proficiency Test
Credit: $\quad 1$ credit
Offered: Spring
Web Page Design is a course that provides instruction in the principles of web design using HTML/CSS and current/emerging software programs. Areas of instruction include audience analysis, hierarchy layout and design techniques, software integration, and publishing. Instructional strategies should include peer teaching, collaborative instruction, project-based learning activities, and community projects.
*Ball State University offers 4 college credit hours in CS 110 who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

## CMP4110 - Virtual Reality (CL)

| Prerequisite: | None |
| :--- | :--- |
| Credit: | 1 credit |
| Offered: | Fall |

This course will introduce the study of the evolving field of virtual reality. Students will explore the basics of virtual reality and 3D graphics. Using emerging technologies, students will create their own VR world.

## 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 II 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: $\quad 1.5$ credits
Offered: Spring
This semester of Computer Science II 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.

## 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: $\quad 1.5$ 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.

## CL College Level

## CP College Prep

DC Dual Credit

## XC Exploratory Course

## 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.

## SCl03101/03102 - Physics l: General Physics (DC)

*Available for College Credit (see pg. ii)
Prerequisite: Fall - Algebra II
Spring - Successful completion of first semester General Physics or permission of Science Division Chair.
Co-requisite: Precalculus 1, 2 (MAT03101/03102) or higher and Physics I: General Physics Lab (SCI03101L/03102L)
Credit: $\quad 1.5$ credits per semester
Offered: Fall/Spring Sequence
General Physics I-II is a high school level course which provides an introduction to the basic principles of physics. Topics include motion, force, energy, heat and thermodynamics, wave motion, sound, light, electricity and magnetism and, as time allows, topics in modern physics. A basic knowledge of algebra and geometry is required for this course. Mathematics in the course serves as a tool to define and describe physical relationships and the logical progression of ideas. The lab portion of the course models the scientific process, and gives students hands on experience in dealing with many of the concepts covered in the course.
*Ball State University offers 3 college credit hours in PHYC 100 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

## SCl03111/03112 - 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 <br> Precalculus for AP. |
| :--- | :--- |
| Credit: | 1.5 credits per semester |
| Co-requisite: | AP Physics I Lab (SCI03111L/03112L) |
| 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 3 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.

SC103113/03114 - AP Physics II (DC)
*Available for College Credit (see pg. ii)

## Prerequisite: AP Physics I or permission of the instructor <br> Credit: $\quad 1.5$ credits per semester <br> Co-requisite: AP Physics II Lab (SCl03113L/03114L) <br> 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 3 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.

## 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 <br> the Science Division Chair. |
| :--- | :--- |
|  | Spring - Successful completion of first semester AP Physics C. |

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.

## CL College Level

## CP College Prep

DC Dual Credit

## XC Exploratory Course

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.

SC103201/03202 - 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. |
| Chemistry I: General Chemistry Lab (SCIO3201L/03202L) and Advanced Algebra/Trigonometry 1,2 |
| (MAT03001/03002) or higher. |

| Credit: | 1.5 credits per semester |
| :--- | :--- |
| Offered: $\quad$ Fall/Spring Sequence |  |


| General Chemistry examines the concepts of the structure of matter, the states of matter, chemical bonding and reaction types, |
| :--- |
| stiochiometry, 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.
*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.

## SC104204/04205 - 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. <br> 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 (SCIO4204L/04205L) <br> Seniors - Pre-Calculus for AP (MAT03311/03312) or any 4000-level math course or permission and AP Chemistry |
| Credit: | Lab (SCIO4204L/04205L) |
| Offered: | 1.5 credits per semester |
| 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 CP College Prep DC Dual Credit XC Exploratory Course

## SCl04301/04302 - 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 <br> permission of instructor |
| :--- | :--- |
| Spring - Successful completion of first semester AP Biology or permission of the Science Division Chair.  <br> Co-requisite: AP Biology Lab (SCIO4301L/04302L) <br> Credit: 1.5 credits per semester <br> 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 and 112 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

## SCl04304 - Biology II: Microbiology (DC)

*Available for College Credit (see pg. ii)

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Prerequisite: One year laboratory biology
Co-requisite: Biology II: Microbiology Lab (SCIO4304L)
Credit: }\quad1.5\mathrm{ credits
Offered: Fall
```

The history of bacterial discovery, the scope of bacterial effects, biotechnology, and the classification of micro-organisms are studied. The course includes the study of the structure, function, and ecology of microbes and viruses. Basic aseptic and sterile techniques for isolating, culturing, and identifying bacteria are discussed and practiced in the laboratory as a prelude to learning fundamental staining techniques, biochemical tests, etc. that are used in the identification of unknown bacteria. Some consideration is given to the medical concerns related to bacterial and viral pathogens.
*Ball State University offers 5 college credit hours in BIO 113 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 <br>  <br>  <br> Spring - Successful completion of first semester Biology II: Human Anatomy and Physiology or permission of <br> Science Division Chair. |
| :--- | :--- |
| Co-requisite: | Biology II: Human Anatomy and Physiology Lab (SCIO4305L/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.

## SCIO4309 - Principles of Ecology (CL)

| Prerequisite: | One year biology |
| :--- | :--- |
| Co-requisite: | Principles of Ecology Lab (SCIO4309L) |
| Credit: | 1.5 credits |
| Offered: | Spring |

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.

## SCIO4310 - Biology II: Zoology (CL)

## Prerequisite: One year biology <br> Co-requisite: Biology II: Zoology Lab (SCI04310L) <br> Credit: $\quad 1.5$ credits <br> 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.

## SCIO4313 - Biology II: Introduction to Nutrition (CL)

| Prerequisite: | None |
| :--- | :--- |
| Co-requisite: | Biology II: Introduction to Nutrition Lab (SCl04313L) |
| 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.

## SCIO4319 - 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.

## SCI04320 - Biology II: Molecular Genetics (CL)

| Prerequisite: | One year biology |
| :--- | :--- |
| Co-requisite: | Biology II: Molecular Genetics Lab (SCIO4320L) |
| Credit: | 1.5 credits |
| Offered: | Spring |

Molecular Genetics is and advanced Biology course emphasizing the structure of DNA and biotechnology techniques. Specific topics include the modular structure of DNA and proteins, the relationship between DNA mutations and cancer, and the molecular techniques used in forensics and biotechnology. Laboratory activities will provide students the opportunity to perform some commonly used techniques in molecular genetics.

## SCI04321 - Biology II: Field Botany (CL)

| Prerequisite: | One year biology |
| :--- | :--- |
| Co-requisite: | Biology II: Field Botany Lab (SCI04321L) |
| Credit: | .75 credit |
| Offered: | Quarter 1 |

This course will emphasize the diversity found within the plant kingdom at differing levels of the classification. Topics covered will include Plant Anatomy, Morphology, Systematics and Taxonomy. Both non-vascular and vascular plants will form the basis of our study. Laboratory explorations will be organized around the study of the structure and function of plants and the organs. This is a field course that will emphasize knowledge of the local flora as models for plant study.

## SCIENCE: LIFE SCIENCE EMPHASIS (Continued)

## SCI04322 - Biology II: Horticulture (CL)

## Prerequisite: One year biology <br> Co-requisite: Biology II: Horticulture Lab (SCI04322L) <br> Credit: $\quad .75$ credit <br> Offered: Quarter 2

Horticulture is an area of applied botany. This quarter course will introduce students to the basic care of houseplants, plant reproduction techniques and the study of special groups of plants such as medicinal plants and carnivorous plants. The labs will emphasize a hands-on approach with activities in the greenhouse or with plants grown on light stands.

## 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: $\quad 1.5$ 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.

## CL College Level

CP College Prep
DC Dual Credit
XC Exploratory Course
SCl04406 - The Solar System (DC)
*Available for College Credit (see pg. ii)

| Prerequisite: | None |
| :--- | :--- |
| Co-requisite: | The Solar System Lab (SCI04406L) |
| Credit: | 1.5 credits |
| Offered: | Fall |

This course is a survey of the solar system based on modern data obtained from NASA and ESA probes. Students are introduced to the basic concepts of planetary science. These concepts include elements of geology and meteorology. The planets, their satellites, and the sun are examined in detail from a planetary science point of view. Other solar system objects such as asteroids and comets are examined as a class. In addition the general motions of bodies in the solar system are examined.
*Ball State University offers 3 college credit hours 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.

## SCl04407 - Galactic Astronomy (DC)

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Prerequisite: Algebra I
Co-requisite: Galactic Astronomy Lab (SCI04407L)
Credit: }1.5\mathrm{ credits
Offered: Spring
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This course introduces students to modern astronomy, its historical roots, and its place as a branch of modern physics. Physics topics include gravitation and the motion of celestial bodies, the relation of electromagnetism to light and thermodynamics and their application to astronomy, modern telescopes and their historical roots. Other topics include the structure of the sun and stars, binary stars, the distance to stars, the birth life and death of stars, neutron stars, black holes, the Milky Way, other galaxies, cosmology and the "Big Bang" theory.
*Ball State University offers 3 college credit hours in ASTRO 120 to students who complete this course. Refer to the Dual Credit section on the Academy Website for details on enrollment and fees.

## SCl04118 - Introduction to Engineering (CL)

| Prerequisite: | None |
| :--- | :--- |
| Co-requisite: | Introduction to Engineering Lab (SCIO4118L) |
| Credit: | 1.5 credits |
| Offered: | Fall |

Introduction to Engineering explores a broad range of engineering and technology topics with their relationship to science and mathematics by solving real world problems. This hands-on course is designed to provide students interested in engineering and technology career opportunities to explore applications related to specialized fields such as mechanical, software, electronical, civil, aeronautical and astronomical engineering, among others. Students will engage in research, development, planning, design, production, and project management. Classroom activities are organized to allow students to work in teams and use modern technological processes, software, and production systems to develop and present solutions to engineering problems.

## SCl04119 - Projects in Engineering (CL)

Prerequisite: Introduction to Engineering or permission of instructor
Co-requisite: Projects in Engineering Lab (SCI04119L)
Credit: $\quad 1.5$ credits
Offered: Spring
Students will develop and work on engineering-related projects that have a strong community service component. The class will be divided into small groups and work on projects based upon common interest. All projects will be required to demonstrate development and application of engineering skills in addition to fulfilling an identified need in the community. As a project based course, much of the activity will likely happen outside of the classroom. Project groups will meet with the instructor on a regular basis.

## RES3000S - Research Science I \& II (CL)

Prerequisite: Spring - Successful completion of first semester Research Science I
Credit: $\quad 1$ 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.

## SCIENCE: APPRENTICESHIP

## APR - Apprenticeship Science Laboratory Assistant

Prerequisite: Permission of Instructor
Credit: 5 or 1 credit per semester
Offered: Fall and/or Spring
The Teaching/Laboratory Assistant program allows students to explore a college major or career interest by working with a professional for a period of time. The emphasis is on applied work experience that enables students to learn more about a potential college major or career choice. Students can earn one half credit (30 hours during the semester) or a full credit ( 60 hours during the semester). Students may schedule with Instructor of Record the times of service as needed to complete the credit requirements necessary to earn Elective Science Credit. Assistantships may begin at different points during the semester.

## SCIENCE: BALL STATE UNIVERSITY COURSES

Ball state courses such as the following may be taken on a space-available basis. The academy is not responsible for fees associated with these courses.

GEOL 101 Introduction of Geology
GEOL 102 Historical Geology
GEOL 206 Oceans and Nations
GEOL 207 Environmental Geology
GEOL 220 Mineralogy

Enrollment into Burris classes (BUR prefix) is subject to space availability. Burris courses meet five days a week and could conflict with other Academy choices. Burris courses are also subject to additional course fees. Courses taken to fulfill graduation requirements will be covered by the Academy. Fees for courses taken for student interest are the responsibility of student and their family.

## FAR05110 - Social History of Art (CL)

Prerequisite: Not open to students with credit in History through Art and Architecture
Credit: $\quad 1$ credit in Fine Arts
Offered: Fall
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 GrecoRoman 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.

## ACADBAND - Advanced Concert Band (CP)

Prerequisite: Beginning and Intermediate Concert Band (Recommended)
Credit: $\quad 1$ 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: $\quad$ Fall and Spring
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 - Advanced Chorus (CP)

Prerequisite: Beginning and Intermediate Chorus (Recommended)
Credit: $\quad 1$ 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 and Spring
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 - Advanced Orchestra (Strings Only) (CP)

| 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 <br> level provided that defined proficiencies and content standards are utilized. <br> Counts as a Directed Elective or Elective for all diplomas. |
| Offered: | Fall and Spring |

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.

## COLLOQUIUM

## COL03900 - Junior Colloquium (CL)

Prerequisite: None
$\begin{array}{ll}\text { Credit: } & .5 \text { credit in Junior Colloquium } \\ \text { Offered: } & \text { Fall }\end{array}$
This is a discussion-oriented seminar and is required for all juniors. Students participate in a variety of experiences: small group seminars, large group lectures, large group outings, and medium group simulations as a part of this interdisciplinary series. All students will do a variety of readings on many different content areas as part of this experience.

## COL04500 - Senior Colloquium (CL)

| Prerequisite: | Junior Colloquium (COL03900) |
| :--- | :--- |
| Credit: | .5 credit in Senior Colloquium |
| Offered: | Spring |

This is a discussion-oriented seminar and is required for all seniors. Students participate in small group seminars as part of this interdisciplinary series. All students will do a variety of readings and discussions on selected content areas as part of this experience.

## INDIVIDUAL STUDY

## INTERNSHIPS

The internship program allows students to explore a college major or career interest by working with a professional for a short period of time. The emphasis is on a work experience that enables students to learn about a potential college major or career choice. Students can earn one half credit ( 60 hours during the semester) or a full credit (120 hours during the semester). Students may schedule with the internship site the times of internship service as needed to complete the credit requirements necessary to earn elective credit. Internships may begin at different points during the semester. For further information, please contact Dr. Joel 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 the Academy curriculum. If students are interested in pursuing a Directed Study, they should first contact the particular instructor with whom they wish to study 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 academy.bsu.edu/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 occurs once the proposal is submitted online.

