



Baxter Academy
for Technology and Science

Program of Studies

**this document is currently undergoing revision. please visit
the Baxter Academy guidance site for the latest version.**

2015-2016

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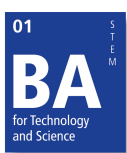
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updated 10JUN2015



Baxter Academy
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Graduation Requirements

A learning standard identifies concepts, skills, or knowledge students need to master in a particular content areas¹. As a standards-based school, Baxter has established a set of standards that represent the graduation benchmarks. Forty-two detailed standards describe what a student needs to know, including:

Research	RS-LU	Students will locate and understand primary and secondary sources.
Math Practices	MP-AQ	Students are able to reason abstractly and quantitatively.
Disciplinary Literacy	DL-T	Students will demonstrate their understanding of the tools, techniques, and processes associated with a Visual or Performing Art.
Forces & Motion	FM-NL	Students use Newton's Laws to explain and predict physical behavior, using Newton's Second Law in particular to connect motions of an object to net forces on that object.

Collectively, these standards ensure that, upon graduation, Baxter students have a complex and complete understanding of concepts, skills, and knowledge essential to post-graduation success in the modern world. Baxter courses are designed so that students have myriad opportunities to demonstrate their growth in each of these standards, ultimately leading to a chance to prove their mastery, along the path to graduation. The graduation benchmark standards also guide students in their growth to become lifelong learners, able to expand their knowledge base as they must, wherever their path may lead them.

The complete list of graduation benchmark standards will be available here after August 2015. As part of ongoing work to improve teaching and learning at Baxter, the comprehensive list of all standards for all courses is being revised during the Summer of 2015. The [2014-2015 list](#) can be viewed at the Baxter home page.

As a public charter school in Maine, all Baxter students are expected to satisfy the requirements of Maine's proficiency-based diploma. For more information about this aspect of graduation, you may wish to consult some of these Maine Department of Education websites.

<http://maine.gov/doe/proficiency/>

¹ from *The Art & Science of Teaching*, by Robert J Marzano

Getting to Proficiency: Helping Maine Graduate Every Student Prepared

<http://www.maine.gov/doe/proficiency/standards/Pyramid.pdf>

Proficiency-Based learning Simplified

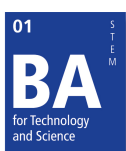
<http://maine.gov/doe/cbp/faq.html>

Proficiency-Based Learning Frequently Asked Questions

In addition to the other requirements that follow in this Program of Studies, the Baxter faculty and administration developed the Baxpectations, a collection of expectations that define what every Baxter student will have achieved by graduation.

Upon graduation, every Baxter student will be able to:

- demonstrate initiative and perseverance in their learning
- collaborate effectively and ethically as a team member
- ask creative questions to guide research
- frame problems and use design methods to develop solutions
- analyze, evaluate, synthesize, and apply data
- acquire and apply thinking and knowledge across fields
- write effectively in a variety of formats
- present work publicly in an organized and purposeful way
- reflect on and articulate their growth as a learner, as well as the relevance and impact of their work
- demonstrate responsible and ethical behavior, as well as proactive participation in the community



Baxter Academy
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Course Offerings:

Master List

Design

Engineering	Fabrication
1000 Intro to engineering 1010 Boat Design 1020 CAD I: Parametric Modeling & Design 1030 CAD II: Parametric Design & Analysis 1040 CAD III: Advanced Design 1040 CAD IV: Advanced Design II 1060 Electronics I 1070 Electronics II 1080 Electronics III 1090 Engineering Design & Methods 1095 Advanced Engineering	1200 Introduction to FabLab 1210 Composites 1220 Industrial Design/Product Design 1230 Introduction to CAM 1240 Luthiery Instrument Building/Repair 1250 Mechanisms 1260 Woodworking
Performing Arts	Visual Arts
1400 Guitar Lab 1410 Music Composition & Technology I 1420 Music Composition & Technology II 1430 History of Popular Music 1440 Music Ensemble 1445 Music Ensemble: A Cappella 1405 Piano Lab 1450 Theater: Performance	1605 Architectural Drawing 1600 Art Fundamentals 1610 CAD: Rendering & Animation I 1615 CAD: Rendering & Animation II 1620 Design Studio* 1625 Drawing I 1630 Drawing II 1635 Fine Art Studio* 1640 Graphic Design I 1645 Graphic Design II 1650 New Media Studio* 1655 Photography, Analogue 1660 Photography, Digital I 1665 Photography, Digital II 1670 Sculpture I: Form & Figure 1675 Sculpture II: Installation 1680 Painting & Illustration I 1685 Painting & Illustration II 1690 Video & Animation I 1695 Video & Animation II
Computer Programming	
1800 Programming for Beginners 1820 Monte Carlo Methods 1830 Excel Modeling and Simulation 1850 Object-Oriented Programming 1810 Problem Solving with Excel 1840 Problem Solving with Programming	

Humanities

Division 3	
On Offer 2015-16 2565 Social Psychology 2500 Senior Seminar: Getting In 2540 Film Studies 2545 Modern Capitalism 2550 Science, Tech, and Ethics 2565 Dystopia/Utopia	Possible Future Courses 2535 Confronting Genocide 2555 The Tragedy 2560 Film Literacy 2505 Project Seminar 2510 Shakespeare 2515 Secret Life of Wonder Woman: Feminist Histories 2520 Imperialism and Colonialism 2525 Deconstructed Superhero 2530 Speech Writing/Public Speaking
Division 2B	(Must take 4 before moving to D3)
2300 Public Policy (two terms) 2310 Constitutional Literacy: Students' Rights 2320 Banned Books	2330 Global South 2340 Digital Media 2350 Poetry/Short Stories 2360 Creative Nonfiction 2370 Multicultural Literacy
Division 2A	(Must take 4 before moving to D2B)
2100 Research Methods 2120 On Trial 2130 Sci-Fi	2140 Social Movements 2150 Writing for STEM 2160 Coming of Age
Division 1	
2000 9 th Grade Team: Humanities Core	
Electives	
2020 Personal Finance	2030 Model United Nations (two terms)

Mathematics

Division I	
3100 Functions for Modeling 3110 Intro to Statistics	3120 Transformational Geometry 3130 Problem Solving with Algebra
Division II <i>Division I Mathematics are prerequisites for all these courses</i>	
3200 Designing Experiments and Studies 3210 Introduction to Logic 3220 Modeling with Polynomials and Rational Functions 3230 Modeling with Trigonometric and Exponential Functions	3240 Three-Dimensional Geometry 3250 Analytic Geometry 3260 Advanced Algebra Concepts and Problem Solving 1 & 2 3270 The Derivative as a Rate of Change 3280 The Integral as Accumulation
Electives	
3000 Non-Euclidean Geometry	3010 Social Decision-Making

Science

Division I	
4100 Modeling in Science 4110 Human Evolutionary Anatomy	4120 Matter and Substances 4130 Waves and Mechanics
Division II <i>Division I Science are prerequisites for all these courses</i>	
4200 Climate Change 4210 Field Ecology 4220 Genetics 4230 Laboratory Methods 4240 Optics	4250 Electricity and Magnetism 4260 Fluids 4270 Nutritional Chemistry 4280 Mechanics 4290 Reactions and Energy 4295 Calculus-Based Physics (3 terms)
Electives	
4000 Introduction to Astronomy	4010 Micro-Anatomy & Pathology

Wellness

Health	Physical Education	Electives
6000 Health	6100 Couch to 5K	6200 Mindful Arts

World Languages

Chinese	French	Spanish
5000 Mandarin for Novices 5010 Intermediate Mandarin I 5020 Intermediate Mandarin II 5030 Chinese Culture 5040 Chinese Handwriting & Calligraphy 5050 Mah Jongg & Chinese Chess	5100 French I 5110 French II 5120 French III & IV 5130 French Culture	5200 Spanish I 5210 Spanish II 5220 Spanish III 5230 Spanish IV 5240 Spanish Culture 5250 Spanish Literature

Other Course Opportunities

College Courses (SMCC/USM)*

Internship/Apprenticeship*

Online Course opportunities*

There are no study halls at Baxter Academy.



Baxter Academy
for Technology and Science

Schedule

The Daily Schedule represents courses and activities that regularly occur during the day on Monday through Thursday. There are occasional adjustments to the daily schedule due to significant events that arise.

Daily Schedule

8.30 - 8.40	Advisory
8.45 - 9.40	A Block
9.45 - 10.40	B Block
10.45 - 11.40	C Block
11.45 - 1.00	Lunch/Midblock
1.05 - 2.00	D Block
2.05 - 3.00	E Block
3.10	buses depart

With five academic blocks each day during three trimesters, students have a total of fifteen blocks to fill to complete their schedule.

Most classes are one term in duration. Those that are not (including World Language and some Humanities and Engineering courses) are so marked in the Course Descriptions.

During 2014-2015, the Midblock session followed this schedule:

	Monday	Tuesday	Wednesday	Thursday
11.45 - 12.25	lunch	lunch	lunch	lunch
12.30 - 1.00	Advisory	Clubs/Activities	Advisory	Flex Friday Project Check-in

Baxter follows a different schedule on Flex Fridays:

Flex Friday Schedule	8.30 - 8.40	Advisory
	8.45 - 11.30	Flex Friday Projects
	11.30 - 12.25	Lunch
	12.30 - 2.00	Flex Friday Projects
	2.00 - 2.15	Project Clean-up Time
	2.15 - 3.00	Clubs/Activities
	3.10	buses depart

As we grow, we will continue to incorporate community Town Hall time into the schedule. This is likely to take place periodically on Fridays.



Baxter Academy
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Course Descriptions

Design

Engineering	Fabrication
Intro to engineering Boat Design CAD I: Parametric Modeling & Design CAD II: Parametric Design & Analysis CAD III: Advanced Design CAD IV: Advanced Design II Electronics I Electronics II Electronics III Engineering Design & Methods Advanced Engineering	Introduction to FabLab Composites Industrial Design/Product Design Introduction to CAM Luthiery Instrument Building/Repair Mechanisms Woodworking
Performing Arts	Visual Arts
Guitar Lab Music Composition & Technology I Music Composition & Technology II History of Popular Music Music Ensemble Music Ensemble: A Cappella Piano Lab Theater: Performance	Architectural Drawing Art Fundamentals CAD: Rendering & Animation I CAD: Rendering & Animation II Design Studio* Drawing I Drawing II Fine Art Studio* Graphic Design I Graphic Design II New Media Studio* Photography, Analogue Photography, Digital I Photography, Digital II Sculpture I: Form & Figure Sculpture II: Installation Painting & Illustration I Painting & Illustration II Video & Animation I Video & Animation II
Computer Programming	
Object-Oriented Programming Problem Solving with Excel Monte Carlo Methods Excel Modeling and Simulation Problem Solving with Programming Programming for Beginners	

Engineering

Advanced Engineering

up to 3 Terms

This is an accelerated college level class that will introduce topics in engineering. Disciplines covered will include statics, dynamics, linear circuits, fluid dynamics, and thermodynamics. Student will be expected to be able to build computer models in Excel, CAD, and various programming languages to solve complex problems.

Prerequisites: Derivative as Change or Calculus, CAD I, Programming, Problem Solving Using Excel

Focus Standards: TBA

Boat Design

3 Terms

This course will explore engineering principles through an in depth study of boat design. Students will study fluid dynamics and basic principles of hull design and apply these principles to design powerboat and sailboat hulls using 3D surface modeling CAD software. Students will optimize their design through an iterative process before constructing their own physical hull model, which the class will test and evaluate as a group. Students will also be responsible for designing many of their boats' subsystems. Each student's final project will be a complete design of her choosing. While this class will cover college-level engineering topics, it will not require the use of calculus.

Prerequisite: Intro to Engineering

Focus Standards: TBA

CAD I: Parametric Modeling and Design

Computer Aided Design (CAD) is a wonderful tool for creating and testing virtual models. It allows designers and engineers to quickly design complex models which can be used as prototypes for physical objects and systems, and with modern CNC machines and 3D printers virtual models can easily be turned into physical models.

In this class students not only learn Solidworks, the industry standard parametric CAD software, but also learn how to use CAD as a design tool. There will be an emphasis on becoming creative designers (more technical challenges will be offered in subsequent CAD classes). This class is highly recommended for anyone who wants to pursue anything involving 3D design, mechanical systems, engineering, architecture, carpentry, digital media, or animation.

Prerequisite: Intro to Engineering

Focus Standards: TBA

CAD II: Parametric Design and Analysis

This class builds off of CAD I. It explores some of the more complex tools available in Solidworks. These include surface modeling, finite element analysis (FEA) and flow analysis. Students will learn how to make technical drawings and some basics

of dimensioning and tolerancing. Students may also get an introduction to MasterCAM and the CNC router.

Focus Standards: **TBA**

Prerequisite: CAD I

CAD III: Advanced Design

This class is the final parametric CAD class. Students will work on only one individual complex design project of their choosing, and will be responsible for producing all the technical drawings, FEA or flow analysis, and assemblies (with motion analysis).

Focus Standards: **TBA**

Prerequisite: CAD II

CAD IV: Advanced Design

This is an independent study option that builds off of CAD III and can be taken at any time a another CAD class meets (provided there is enough room). While students will spend most of their working on advanced independent projects, there is an expectation that students will go on to take and pass either a Solidworks Professional or Expert exam to be certified.

Focus Standards: **TBA**

Prerequisite: CAD III

Electronics I

This course is a hands-on, practical introduction to the fundamentals of electronics. Techniques will include the breadboarding and soldering of circuits that use resistors, capacitors, transistors, and integrated circuits. The series of required projects may include making an intrusion alarm, holiday lights, wearable electronic jewelry, audio processors, a reflex tester, and a combination lock. Skills will include use of a multimeter and a pocket oscilloscope. The projects will be selected so that students may work at their own pace and reach a skill level that is appropriate for them. Interested students will be encouraged to attempt a final project of their own choosing. Students will be expected to read independently on one or two theoretical topics and give written and oral presentations.

Prerequisite: Intro to Engineering

Focus Standards: **TBA**

Electronics II

This is a course in advanced analog electronic circuits, for students who have already taken Electronics 1. Topics to be covered may include transistors, operational amplifiers, oscillator circuits, voltage regulators, field-effect transistors, and precision circuits.

Prerequisite: Electronics I

Focus Standards: **TBA**

Electronics III

This is a course in advanced digital electronic circuits, for students who have already taken Electronics 2. Topics to be covered may include binary arithmetic, logic gates, arbitrary truth tables, boolean arithmetic, digital-to-analog conversion, digital memory, and the fundamentals of digital computing.

Prerequisite: Electronics II

Focus Standards: TBA

Engineering Design and Methods

Learn how to think like an engineering by solving some real world hands on problems. Class will focus on project management, collaboration and problem solving.

Prerequisite: Intro to Engineering

Focus Standards: TBA

Intro to Engineering

Good engineering is all about creativity, and this course will teach students the fundamental skills to become creative designers. The foundation of good design and good engineering starts with understanding of three core principles: how to effectively define problems; how to design, develop, model and test possible solutions; and how to evaluate, iterate, and optimize those solutions. Students will work through a number of hands-on design projects that will directly tie in with their other courses.

Focus Standards: TBA

Fabrication

Intro to FabLab

This course shall introduce students to a variety of manufacturing technologies, the proper use of both hand and power tools, shop safety, and the art of making. Students will have an opportunity to learn techniques that will ensure accuracy and precision in craftsmanship. They will also be introduced to the design process and be able to make and interpret shop drawings.

Focus Standards: TBA

Composites

This course shall introduce students to a variety of composite technologies like fiberglass, carbon fiber, foam, and laminated wood. Students will learn to fabricate molds and tooling as well as design composite layups. This course will also cover composite manufacturing technologies as they are applied to sporting goods such as surfboards and bicycles and boat building. Students will produce molds and tooling using the CNC as well as woodworking hand tools.

Students with allergies may have difficulty working with composites as fumes and dust can be irritating. Proper protective gear and safety precautions will be taken but may not be sufficient for students with sensitivities to chemicals and dust.

Prerequisite: Intro to FabLab

Focus Standards: **TBA**

Industrial Design/Product Design

This course shall introduce students to product design and model making. Students will be expected to sketch on paper and create foam/wood/paper models regardless of their CAD experience levels. The focus of the course is on ideation techniques, Empathy research and concept development. The course will also investigate materials and manufacturing technologies.

Prerequisite: Intro to FabLab

Introduction to CAM

Computer Aided Machining or CAM is a class devoted to teaching the CAM software used to program tool paths for the cnc router to follow. CAD programs like Solidworks, Inventor, Rhino 3D, Illustrator and Autocad help us create complex 2d and 3D drawings with great accuracy. The CNC router cannot however machine a part directly from these files. CAM software serves to instruct the machine on the specific ways in which the part should be machined.

All parts start from a block or panel of stock material. CNC machining is a reductive process in that it carves away all the material that is not included in the final part dimensions. (Imagine a sculptor standing in front of a giant block of marble trying to "see" the statue within) CAM software writes step and direction commands for the motors controlling the router. Depending on the geometry this may be as easy as saying, "follow this path in a straight line from point A to point B." These tool paths can often be written without the help of CAM software. Once we begin following surfaces in 3D and compensating for the radius of the tool, however, the programming becomes much too complex to perform manually.

Our main software package is Mastercam. It has long been a standard in the industry and offers a great amount of tool path options. We will also experiment with new software that greatly increases the ease of CAM programming as well as collaboration between designers. Autodesk has recently released stable versions of a program called Fusion 360 that allows CAD, CAM and even simulations to be performed within the same software package. Most problems in manufacturing occur when trying to collaborate and translate 3D drawings. Fusion 360 solves many of these issues and will no doubt be a very popular platform in the future.

Focus Standards: **TBA**

Prerequisites: Intro to FabLab, CAD I

Luthiery: Instrument Building and Repair

This course shall introduce students to designing, building and repairing musical instruments. Students will learn about how sound is produced and shaped as well as woodworking techniques specific to musical instrument production. There will be opportunities for using a CNC router to produce parts as well for those with CAD experience. Students will have a choice of what type of instrument to build and may choose to invent their own musical instrument.

Students are required to have an advanced understanding of woodworking concepts. They will also be expected to purchase components and materials for their project. Each student will create their own individual instrument unless special exceptions are made.

Prerequisite: Intro to FabLab

Focus Standards: **TBA**

Mechanisms

This course shall introduce students to mechanisms and the way things work. Students will start by constructing mechanisms from simple machines; levers, inclined planes, pulleys, wedges, gears (wheel and axle), and screws. Projects will vary from "Rube Goldberg"/Arthur Ganson mechanisms that performs a certain task to human powered vehicles. Students will be expected to sketch ideas on paper and do simple geometric and algebraic calculations.

Prerequisite: Intro to FabLab

Focus Standards: **TBA**

Woodworking

Woodworking at Baxter Academy offers students the opportunity to explore more advanced woodworking techniques and skills. Projects may include everything from creating a jewelry box with hand cut dovetails to restoring a 100 year old wood and canvas canoe (and everything in between). Students will have the opportunity to work on a project of their choice, but opportunities will also be offered to work on larger group projects like furniture, boat building, lutherie, laminating skateboard decks, etc.

Students working on their own personal projects will be expected to provide their own materials. All students are expected to work independently as well as in groups. At the end of the semester everyone in the class will also have an opportunity to share what they have learned with their peers. The many techniques, tools and specialized skills generated by the diversity of projects creates an opportunity for students to be exposed to much more knowledge than they would have if every student were working on similar projects.

Prerequisites: Intro to FabLab

Focus Standards: **TBA**

Performing Arts

Guitar Lab

In this introductory course, students will learn how to play open chords, single note melodies, and basic strumming patterns. The course will focus on learning songs as well as learning to read music for guitar. Students will also learn how to practice, allowing them to progress as musicians on their own. Students must supply their own acoustic guitar.

Focus Standards: **TBA**

Music Ensemble

Students will pursue an instrument of their choice and participate in a musical ensemble. This ensemble will learn songs together and perform them for the school and possibly outside audiences. Our ensemble will explore various genres of music; anything students are passionate about performing. We welcome guitarists, keyboardists, violinists, DJs, singers, drummers. If you've never played an instrument or you're an experienced musician, there's a place for you in the ensemble! Students will need to provide their instrument/gear for this class.

Focus standards: DL-LWD, CP-PI, CP-PAP

Music Ensemble: A Cappella

This co-ed ensemble will learn songs together and perform them for the school and possibly outside audiences. Our ensemble will explore various genres of music; anything students are passionate about performing. Students must be able to learn music either by ear or through reading music and be able to match pitch and sing harmony. There may be a short audition for this ensemble if necessary.

Focus standards: DL-LWD, CP-PI, CP-PAP

Music Composition and Technology 1

Students will learn basic musical concepts through guided composition projects, using *GarageBand*, or other musical software of the student's choice. Projects will include creating sound FX, Ringtones, and songs. Basic music theory and production concepts will also be covered. Previous musical experience is beneficial but not required.

Focus Standards: **TBA**

Music Composition and Technology 2

In the second part of this course, students will dig deeper into the realm of music and composition. Students will have more freedom in designing their projects, and will have a chance to learn more music theory and production techniques. *Prerequisite: Music Composition and Technology 1.*

Focus Standards: **TBA**

History of Popular Music

This course will be a survey of popular music from the turn of the 20th century to now. Students will learn about the major trends in popular music, from early jazz to dubstep, and reflect on how these trends influence and are influenced by contemporary events. Artists examined will include but aren't limited to: Elvis Presley, Bob Dylan, The Beatles, Stevie Wonder, Joni Mitchell, and Michael Jackson.

Focus Standards: **TBA**

Piano Lab

In this introductory course, students will learn how to play chords, single note melodies, and basic comping rhythms. The course will focus on learning songs as well as learning to read music for piano. Students will also learn how to practice, allowing them to progress as musicians on their own. Students should own a piano or keyboard for home practice, though no previous experience is necessary.

Focus Standards: **TBA**

Theatre: Performance

Students in this course will get up, move around, adopt different roles each class, and explore theatre techniques through a variety of visualization techniques, craft discipline, and improvisational exercises. Focus is on improving or acquiring techniques to allow performers to create and maintain character, to listen and engage with other performers, and to improvise scenes and events collaboratively. Students are expected to learn and practice listening and collaborative skills, and are expected to actively participate in all in-class performance exercises. No experience necessary. [Students who wish to improve their craft may retake this course.](#)

Focus Standards: CP=PI, DL-LWD, EHW-FC

Visual Arts

Architectural Drawing

Channel your skills into the ancient and ever-changing world of the built environment. Topics covered will include in-depth analysis of form and space, scale and perspective drawing, model construction, presence and absence, ideas of "place," light and lighting, and our experience of movement. This is not a class in architecture per se—we will not cover site preparation, architectural detailing, utilities planning, construction methods, or many of the other elements of professional practice. We will study how spaces are designed and practice the art of representing those considerations. Students should expect to contribute to a productive and focused atmosphere with long, quiet, work sessions and some lectures.

Focus Standards: **TBA**

Prerequisites: Drawing I

Art Fundamentals

Topics covered include Elements of Art and Principles of Composition, Mark-making and Gesture, Color Theory, and an introduction to the Adobe Creative Suite.

Focus Standards: **TBA**

CAD: Rendering & Animation I

This class builds off of CAD I, and teaches student basics of rendering and animation. Students will be working with Maya (the same software Pixar uses) to create realistic 3D models used for photo-realistic renderings or short animations. Students will learn the basics of polygon and NURBs modeling, along with animation, shading, lighting, cameras, and particles.

Focus Standards: **TBA**

Prerequisite: Art Fundamentals

CAD: Rendering and Animation II

Students will improve their modeling, animation, and rendering skills while exploring tools like paint, clothing, fluids, skeletons, and particles.

Focus Standards: **TBA**

Prerequisite: CAD: Rendering and Animation I

Design Studio

This course is provided for serious students of the design process, with concrete ambitions in research and development through the design process. Focus will be on independent work sessions and 'studio visits' with the instructor, with some group discussion and critique. Students interested in a degree in architecture, industrial design, fashion design, or anyone who wants to really hone their own capacity to develop ideas and represent them professionally to others would find here the space, materials, and support they need to advance their work.

Focus Standards are determined by student and instructor at beginning of course.

Prerequisites: Graphic Design I & II, or Architectural Design

Drawing I

This is a structured and detail-oriented course in both the technical and creative aspects of drawing practices. Observational drawing exercises will be combined with design drawing techniques to develop effective mark-making and accurate perspective. Cross-hatching, pen & ink, and charcoal techniques will all be covered.

Focus Standards: **TBA**

Prerequisites: Art Fundamentals

Drawing II

For students interested in advancing their skills, this course provides advanced instruction on observational and design drawing practices, and encourages

independent development toward an area of interest. Comic illustration techniques, mixed media and cross-hatching will all be used to advance an understanding of personal approach, compositional values, and understanding an audience.

Focus Standards: TBA

Prerequisites: Drawing I

Fine Art Studio

Patient and painstaking, watercolor painting remains one of the most accessible and rewarding color media options. We will work from observational drawings at first, then explore more expressive—even gestural—approaches to the medium. Study and practice of proven methods will result in a final project of the student's own choosing, to be developed over several weeks.

Focus Standards are determined by student and instructor at beginning of course.

Prerequisites: Drawing I & II, Painting I & II, or Sculpture I & II

Graphic Design I

Ever wanted to create a logo, website, t-shirt, poster, or packaging for a product? These are all examples of graphic design, "the art or profession of visual communication that combines images, words, and ideas to convey information to an audience." This course will provide students with the opportunity to explore the fundamentals of graphic design (shapes, color, texture, typography, and imagery). Students will utilize Adobe Photoshop and Illustrator to create professional work which we'll exhibit to the public.

Focus standards: DL-E , DL-T, S-ID, R-P

Prerequisite: Art Fundamentals

Graphic Design II

Through advanced exploration of the designer-audience relationship, students will develop type, logos and layouts for specific purposes, including branding and packaging.

Focus standards: DL-E , DL-T, S-ID, R-P

Prerequisite: Graphic Design I

New Media Seminar

Enter the interactive and high-tech world of media exploration. Cutting edge projects that require their audience to reimagine one's relationship with others and our collective relationship with technology and the world continue to emerge - and with them, a renaissance of experimentation and self-expression. Through seminars, lectures, workshops and independent project development, students will gain an understanding of contemporary art through the lens of its most vanguard front. Topics covered will include issues relating to performance, cybernetics, interaction, the self, and other, games, podcasts, audience, internet society, and the idea of the spectacle.

Focus Standards are determined by student and instructor at beginning of course.

Prerequisites: Video and Animation I & II or CAD: Rendering and Animation I & II

Painting & Illustration I

The production of images can happen in many ways. The technical content of the course will focus on mixed media techniques in ink, acrylic, watercolor and print. Regular critiques and discussions will ensure appropriate feedback on voice, message, product and process.

Focus Standards: **TBA**

Prerequisite: Art Fundamentals

Painting & Illustration II

This course will advance the your artist's approach to the creative process, while building a deeper understanding of the materials and practices established in Painting & Illustration I. Avenues of continued exploration will include substrates and exhibition, audience and identity.

Focus Standards: **TBA**

Prerequisite: Painting & Illustration I

Photography, Analogue

This course will focus on the chemistry and optics of film photography. Students will start by building a simple pinhole camera. Once they have mastered the theory of development chemistry, they will mix their own developer, stop, and fixer for black-and-white photography and do tank developing of large- and medium-format as well as 35mm negatives. Studying the theory of thin-lens optics will lead to a deep understanding of camera focus, aperture, and exposure. Assessed work will include reading, writing, and presenting on the history of photography. Students are expected to come up with an ambitious final project. Project topics might include lens building, collodion process (tintypes and ambrotypes), historical printing techniques such as the cyanotype, or C-41 color film developing.

Focus Standards: **TBA**

Prerequisite: Art Fundamentals

Photography, Digital I

Traditional and cutting edge techniques will give the student of photography the skill set to derive a lifetime of pleasure from this accessible and expressive practice. Photography has become ubiquitous—everywhere we go, a camera is sure to follow. And yet, how often do we really contemplate the photos that we post online or paste into scrapbooks? What does it mean to document our lives? Or to be documented by others? Topics will include color correction, basic camera techniques, basic Photoshop techniques, how to develop a portfolio, and how to contribute to critiques.

Focus Standards: **TBA**

Prerequisite: Art Fundamentals

Photography, Digital II

Topics will include color manipulation, advanced Photoshop techniques, how to develop a personal practice, and where and when to contribute your work.

Focus Standards: **TBA**

Prerequisite: Digital Photography I

Sculpture I: Form & Figure

(Formerly "Mask-making & Puppetry")

Through wood, wax, glue, papier mache, and fibers, we will examine the techniques of crafting figures, human or otherwise. We will look at proportion, scale, anatomy, texture, and color. Results may include one wearable work of art, or one display piece.

Focus Standards: **TBA**

Prerequisite: Art Fundamentals

Sculpture II: Installation

By mastering materials introduced in Sculpture I, this course will explore the many overlaps between creation and exhibition. We will work on site-specific sculpture to adorn or transform public and private spaces.

Focus Standards: **TBA**

Prerequisites: Sculpture I: Form & Figure

Video & Animation I

This course is an introduction to digital animation through Adobe After Effects and Flash.

Focus Standards: **TBA**

Prerequisites: Art Fundamentals

Video & Animation II

Building on the tools introduced in V&A I, we will be developing complex compositions collaboratively, and exhibiting them for an audience.

Focus Standards: **TBA**

Prerequisites: Video and Animation I

Computer Programming

Excel Modeling and Simulation

This class builds on the Problem Solving with Excel. Students go deeper into design larger more elaborate models. Simulation will be large component of the models and will require scripting.

Focus Standards: **TBA**

Prerequisite: Problems solving with Excel

Monte Carlo Methods

This class explores complex modeling and simulation through Monte Carlo. Monte Carlo allows one to simulate complex problems that are often impossible to solve through mathematical methods, through random sampling of defined variables. This is an advanced class and will allow students to go in depth on difficult problems.

Focus Standards: **TBA**

Prerequisite: any programming class

Object-Oriented Programming

This course is an introduction to object-oriented programming using the Java language. Students will learn how to use Java through a series of small programs where they not only learn how to program and debug, but also how to become good problem-solvers. Students will create programs ranging from quantitative tools like polynomial solvers to complex, multi-level games. This is a fast-paced class that requires students to be independent learners and comfortable with math: expect consistent homework every night.

Focus Standards: **TBA**

Prerequisite: Intro to Engineering

Problem Solving with Excel

Spreadsheets are an amazing tool—you can quickly and easily perform complex calculations, write programs, create charts and graphs, evaluate data, and much more. Learn the basics of how to use this tool and see how amazing it truly is.

Focus Standards: **TBA**

Prerequisite: Intro to Engineering

Problem Solving with Programming

Any completed program is a solution to a specific problem. In this course students will focus on learning the skills necessary to break down a programming task into smaller pieces, design algorithm-based solutions to those tasks, and assemble them into a coherent and comprehensive program. Students will learn language-specific skills, as well as data structures and methods. Advanced techniques in designing effective programming solutions include crafting clear and comprehensible user interfaces, strategizing code that can preemptively prevent or adapt to incorrect input, and programs that are not only effective but also efficient.

Focus Standards: **TBA**

Programming for Beginners

If you're interested in programming, but have never done it before, then this is the course for you. Students in this course will learn the fundamentals of creating a program: input, output, control, and user interfaces. Students will work in an individually paced, online course environment with teacher support.

Focus Standards: **TBA**

Humanities

Division 3	
Project Seminar Shakespeare Secret Life of Wonder Woman: Feminist Histories Imperialism and Colonialism Deconstructed Superhero Speech Writing/Public Speaking	Confronting Genocide Film Studies Modern Capitalism Science, Tech, and Ethics The Tragedy <i>or</i> Dystopia/Utopia Film Literacy Social Psychology Senior Seminar: Getting In
Division 2B (Recommended for Gr. 11)	
Public Policy (two trimesters) Constitutional Literacy: Students' Rights Banned Books <i>or</i> Multicultural Literacy	Global South Digital Media Poetry/Short Stories <i>or</i> Creative Nonfiction
Division 2A (Recommended for Gr. 10)	
Research Methods On Trial	Sci-Fi <i>or</i> Coming of Age Social Movements Writing for STEM
Division 1	
9 th Grade Team: Humanities Core	
Electives	
Personal Finance	Model United Nations (two trimesters)

Division I (9th Grade Team) 3 Terms

The 9th grade Humanities curriculum is built around a project-based approach exploring community, civics, and democracy. Students and teachers will collaboratively design projects, developing inquiries, research plans, real world connections, and professional products that demonstrate student growth in skills, understanding, and disposition. Students will explore how their own lives connect to their communities. This year long course will be focused on building communication skills through reading, writing, and researching where students habitually use the writing process and Socratic Seminar. Active reading strategies will be employed to analyze and interpret texts from various literary genres while also exploring social and cultural issues. There will be an emphasis on language and literacy strategies that will be applicable to all subject areas. Students will show productive use of

technology through a variety of presentations and projects.

Focus Standards:

Writing
Reading
Research
Speaking and Listening
Civics and Government
Historical Context

Division IIA

4 Terms

Courses in this division will develop literature analysis, writing, and research skills needed for upper level work. The work on this level will still be focusing on fundamentals and will allow students to do more advanced study in Division III.

Focus Standards:

Writing
Reading
Research
Speaking and Listening
Civics and Government
Historical Context

Potential Course Offerings:

Research Methods
On Trial
Sci-Fi as Social Critique *or* Coming of Age
Social Movements
Writing for STEM

Prerequisite: Division I Humanities

Division IIB

4 Terms

Courses in the Division III will further develop historical thinking, literature analysis, and writing skills. The work in Division III will prepare students for collegiate study and meet graduation requirements.

Focus Standards:

Writing
Reading
Research
Speaking and Listening
Civics and Government
Historical Context
Foundation of Economics

Potential Course Offerings:

Public Policy (two trimesters)
Constitutional Literacy
Banned Books *or* Multicultural Literacy
Global South
Digital Narratives

Prerequisite: Division IIA Humanities

Division III

Elective Courses

These courses develop some of the same skills in previous courses but on a more rigorous level and will address additional skills. This level is for students wishing to have more advanced studies in specific content areas that will be similar to college courses.

Focus Standards:

Writing
Speaking and Listening
Research
Civics and Government

Potential Course Offerings:

Imperialism and Colonialism
Deconstructed Superhero
Speech Writing/Public Speaking
Poetry/Short Stories

Foundations of Economics

Creative Nonfiction
The Tragedy
Dystopia/Utopia
Film Literacy
Social Psychology
College Essay Writing
Personal Finance
Project Seminar
Shakespeare
Secret Life of Wonder Woman
Science, Tech, and Ethics
Confronting Genocide
History of Popular Music
Philosophy
Film Studies
Modern Capitalism

Prerequisite: Division IIB Humanities

Personal Finance

This class will teach students how to create a basic household budget, prepare for retirement, explore options for paying for college, understand taxes, and know how loans work . The course will be interactive and work much like a role-playing game. After establishing a base budget we will treat every day of the class as a "year" in our lives. As we move through the years we will need to react to changes that will come up as part of the game. This will help us learn to react to unexpected life events in a constructive way and continue to have a healthy financial outlook.

Focus Standards: FE-MM

Mathematics

Division I	
Functions for Modeling Intro to Statistics	Transformational Geometry Problem Solving with Algebra
Division II <i>Division I Mathematics are prerequisites for all these courses</i>	
Designing Experiments and Studies Introduction to Logic Modeling with Polynomials and Rational Functions Modeling with Trigonometric and Exponential Functions	Three-Dimensional Geometry Analytic Geometry Advanced Algebra Concepts and Problem Solving 1 & 2 The Derivative as a Rate of Change The Integral as Accumulation
Electives	
Non-Euclidean Geometry	Social Decision-Making

Division I

Students must demonstrate proficiency in the standards in all of these classes for successful transition into Division 2.

Functions for Modeling

This course will serve as an introduction to functions, domain, range, and function notation. Families of functions will focus on linear and quadratic functions as models for motion. An introduction to right triangle trigonometry will be included. Ideally, this course will be taken concurrently with the Modeling in Science class.

Focus Standards: SMP-MOD, ALG-LQ

Intro to Statistics

The first unit will focus on univariate data, measures of center and spread, and methods of representation. Unit 2 will present students with bivariate data, methods of representation, and regression and correlation.

Focus Standards: SMP-COM, SMP-DAT, SP-ID

Prerequisites: Functions for Modeling & Modeling in Science

Transformational Geometry

Students will investigate properties of polygons, how they are represented on the coordinate plane, and methods of calculating distances and slopes. Additionally, students will use polygon properties and transformations to prove shapes on the coordinate plane.

Focus Standards: SMP-ARG, GEO-PLP

Prerequisites: Functions for Modeling & Modeling in Science.

Problem Solving with Algebra

Students will expand their ability to create and solve equations by investigating interesting problems and applying their knowledge of functions and modeling, including solving systems of equations. Function families will extend to exponential and inverse. Additionally, they will use sequences as an introduction to recursive thinking.

Focus Standards: SMP-MOD, SMP-RAQ, ALG-LQ

Prerequisites: Functions for Modeling & Modeling in Science.

Division II

Before moving on to any Division 2 mathematics classes, students must demonstrate by exhibition their mastery of the standards represented in Division 1 classes.

Designing Experiments and Studies

Students will learn about the design of statistical studies and how randomness plays a role in the results. Topics include normal distributions, decision-making with statistics, and confidence intervals.

Focus Standards: SMP-ASK, SMP-DAT, SP-INF

Prerequisite: Intro to Statistics.

Introduction to Logic

In this course, students will learn how to develop a logical argument based on deductive and inductive reasoning. Then they will use algebraic or geometric reasoning to develop logical arguments and prove conjectures about structures within the real number system.

Focus Standards: SMP-ARG, SMP-COM, NQ-R

Prerequisite: Problem Solving with Algebra.

Modeling with Polynomials and Rational Functions

In this course, students will investigate properties of polynomials and rational functions and apply these functions to appropriate contexts. Additionally, students will be able to manipulate the function expressions into equivalent forms.

Focus Standards: SMP-MOD, ALG-PR

Prerequisite: Problem Solving with Algebra.

Modeling with Trigonometric and Exponential Functions

Students will investigate properties of trigonometric and exponential functions and apply these functions to appropriate contexts. Additionally, students will learn about solving trigonometric and exponential equations by applying inverse functions.

Focus Standards: SMP-MOD, ALG-T, ALG-EL

Prerequisite: Problem Solving with Algebra.

Three-Dimensional Geometry

Students will investigate properties of three-dimensional shapes, create orthogonal and isomorphic projections, and apply their learning to architectural situations. Additionally, students will visualize slices through objects and identify types of symmetry present.

Focus Standards: GEO-3D, GEO-SR

Prerequisite: Transformational Geometry.

Analytic Geometry

Students will learn about conic sections on the coordinate plane and through their geometric definitions. They will manipulate the algebraic representations, analyze graphs, and apply transformations.

Focus Standards: GEO-CS, SMP-RAQ

Prerequisites: Transformational Geometry & Problem Solving with Algebra.

The Derivative as a Rate of Change

The concept of derivative is a foundational idea for calculus. In this course, students will be introduced to the derivative of a function as a rate of change. The concept will be applied to generic functions as well as to situations in physics and environmental science. This course, taken along with Integral as Accumulation, will provide a solid conceptual foundation for a college calculus class.

Focus Standards: TBA

Prerequisites: Modeling with Polynomial and Rational Functions & Modeling with Trigonometric and Exponential Functions, or teacher permission

The Integral as Accumulation

The concept of the integral (or anti-derivative) is the other foundational idea for calculus. In this course, students will approach the concept of integral as the accumulation of area. The concept will be applied to generic functions as well as to situations in physics and environmental science. This course, taken along with Derivative as a Rate of Change, will provide a solid conceptual foundation for a college calculus class.

Focus Standards: TBA

Prerequisites: Modeling with Polynomial and Rational Functions & Modeling with Trigonometric and Exponential Functions, or teacher permission

Advanced Algebra Concepts and Problem Solving 1 and 2

2 Terms

Part 1: This part of the course will start with a discussion of the meaning and usefulness of algebra, especially as a tool for mathematical generalization. Polynomials, factoring, and rational expressions will be studied in detail, together with the solving of linear equations in one or two unknowns. Students will then develop an individual program for intensive training in basic algebra skills. Possible

topics for projects or advanced problem solving include arithmetic and geometric progressions, Pascal's triangle, applications to music such as the well-tempered clavier, and problems in number theory.

Part 2: This part of the course will move rapidly through the topics of quadratic equations, Vieta's theorem, infinite sums, roots, noninteger powers, problems involving maxima and minima, inequalities, and the numerical solution of algebraic equations. Students will assess and further consolidate their basic skills, and then go on to attack a variety of challenging algebra problems, including problems from international mathematics olympiads. Students will be expected to choose an algebra topic for advanced study and to produce a well-written and substantial final paper and presentation.

Focus Standards: **TBA**

Prerequisites: Problem Solving with Algebra, or teacher permission

Electives

Students may elect to take these courses at any time.

Non-Euclidean Geometry

The typical high school geometry class is based on the definitions, axioms, postulates, and theorems written by the Greek mathematician Euclid in 300 BC. His work is based on a limited number of definitions and five postulates, from which he derived the rest of two-dimensional geometry that we study today. But what if those five postulates aren't all true? What if the two-dimensional plane is actually curved? Non-Euclidean Geometry investigates these possibilities and how they impact our thinking of the world around us.

Focus Standards: GEO-PLP, GEO-3D

Social Decision Making

"Fairness" is a mathematical idea connected to voting and apportionment. How does a group decide on a restaurant? How does a society elect its representatives? How is an estate divided fairly among surviving heirs? How should we apportion our elected representatives so that all citizens have an equal voice? These are the complex issues of social decision making. In this class, students will simplify these problems to learn some basics, but then tackle these more difficult, more complex issues that we face every day.

Focus Standards: SP-UP

Science

Division I	
Modeling in Science Human Evolutionary Anatomy	Matter and Substances Waves and Mechanics
Division II	
<i>Division I Science are prerequisites for all these courses</i>	
Climate Change Field Ecology Genetics Laboratory Methods Optics	Electricity and Magnetism Fluids Nutritional Chemistry Mechanics Reactions and Energy Calculus-Based Physics
Electives	
Introduction to Astronomy	Micro-Anatomy & Pathology

Division I

Students must demonstrate proficiency in the standards in all four of these classes for successful transition into Division 2.

Modeling in Science

An introduction to observational Science at Baxter, this course uses fundamental Physics concepts of kinematics as a springboard for student to learn methods of inquiry and modeling. Students will study one- and two-dimensional motion, developing models for position, velocity, and displacement. Ideally, this course will be taken concurrently with the math Modeling class.

Focus Standards: SP-I, EHW-CT, IP-DAI, IP-M

Human Evolutionary Anatomy

How did the human body evolve, and how does it develop, grow, and function? This class will be an overview of human anatomy and evolution, with a focus on the musculoskeletal system, and a comparison of modern anatomy to the anatomy of humans in the past. Topics include: muscle and skeletal development, anatomy, and histology; the biomechanics of muscles and bones; craniofacial growth and development; the functional morphology of chewing, respiration, vocalization, locomotion, and much more.

Focus Standards: TBA

Prerequisites: Functions for Modeling & Modeling in Science

Matter & Substances

The basis of Chemistry is to apply macroscopic observations to nanoscopic events. Students describe and interpret observations to infer structure that can not be seen, and use those models to understand and predict behaviors, while mastering the fundamental terminology and practice of Chemistry. Students will be expected to conduct meticulous observations and apply precise data analysis to effectively and efficiently communicate their findings.

Focus Standards: SP-I, PS-MI, CO-ECC

Prerequisites: Functions for Modeling & Modeling in Science.

Waves & Mechanics

The nature of forces, and the complex interaction of those forces, determines the resulting motion or the energy transfer (or lack thereof) within a system. Students will make direct observations of motion, force, and energy to infer how that system might change. Students will apply specific mathematical models to effectively describe forces and interactions, and how mechanical and wave models can be applied to statics, engineering, and optics.

Focus Standards: TBA

Prerequisites: Functions for Modeling & Modeling in Science.

Division II

Before moving on to any Division 2 mathematics classes, students must demonstrate by exhibition their mastery of the standards represented in Division 1 classes.

Climate Change

Biomes don't just happen. Planetary systems create locations, environments, and climate where things can happen, and where they can not. Feedback, energy flow, and the ebb and flow of resources affect life, just as that life affects those systems. Grounded in the mechanisms of change, students defend arguments related to the causes of climate change, and evaluate potential mediation strategies.

Focus Standards: TBA

Electricity and Magnetism

Together, electricity and magnetism form one of the four fundamental forces of nature. Learning how they are inextricably connected, and how their fields influence the matter and energy around them is essential to understanding the true and complex nature of the physical world around us.

Focus Standards: TBA

Field Ecology

Out in the field and in the classroom, students study the biomes and microclimates around Baxter Academy.

Focus Standards: TBA

Fluids

Beyond structure and reactions, this advanced chemistry course focuses on liquids and gases. Much of the course will investigate the nature of chemical solutions, with a particular focus on acids and bases. Students will also research, develop, and apply coherent models for the behavior of gases, and examine the properties of liquids (including viscosity).

Focus Standards: TBA

Genetics

Although the principal concepts of genetics have been known for only 100 years, genetic selection has been conducted for many centuries on domesticated animals (i.e. dogs) and food crops (i.e. corn). The field of genetic research, although still in its infancy, represents a fundamental aspect of human biology. While recent advances in genetic research have provided a greater ability to diagnose and treat various human abnormalities, such as cancer, they have also produced many ethical and political considerations, which are still hotly debated and remain unresolved. This class will provide you with an understanding of the principles and concepts of genetics. Specific objectives of this course are to provide an understanding and discuss ramifications of: 1) Inheritance, 2) Gene Structure, 3) Gene Function, 4) Gene Mutation, and 5) Ethical issues related to genetic research and its applications.

Focus Standards: TBA

Nutritional Chemistry

Nutritional chemistry is a process of analyzing the biochemistry of your body. It covers not just "what's in my food" — nutritional requirements — but why they are required for human health, by examining their function at the body, cellular and molecular levels. Do children, teens and adults need the same nutrition? What happens when we are stressed? We will also explore what is in the food we eat, how the chemicals used to grow our food bioaccumulate, the effects processing foods has on its nutritional content and the many "diets" in the US and around the globe, assessing their overall healthiness.

Focus Standards: TBA

Laboratory Methods

Building on the foundations established in life, physical, and earth sciences, students design, implement, and evaluate their own scientific research. Identifying an area of interest, investigating current research in the field, and developing a specific and relevant research question constitute the first section of the course. In the second part, students conduct their research, and then collate their work into cohesive, complete, and detailed documentation.

Focus Standards are determined by student and instructor at beginning of course.

Mechanics

Newton's Laws of Motion are far more complex (and interesting) than a few simple phrases to be memorized. In this course, students study Newton's Laws in detail, along with the work-energy theorem, the impulse-momentum theorem, particle motion in a plane, plus linear and coupled oscillators. Students are expected to both design real-world systems and analyze theoretical ones.

Focus Standards: **TBA**

Prerequisite: Waves & Mechanics

Optics

A study of geometrical optics, including reflection and refraction at plane and spherical surfaces, wave interference and diffraction, and the fundamentals of laser operation.

Focus Standards: **TBA**

Reactions & Energy

Supported by a solid foundation of atomic structure and chemical bonding, students will study and measure the mechanics and dynamics of chemical reactions. Topics will include stoichiometry, reaction rates, and thermochemistry.

Focus Standards: SP-CT, PS-MI, CO-ECC

Calculus-Based Physics

3 Terms

This is a full-year, three-trimester, calculus-based physics course given as a Baxter-USM collaboration. The topics to be covered include Newtonian kinematics and dynamics, simple harmonic motion, gravity, fluids, and elasticity. Calculus will be used freely and frequently in the course, so it is recommended that you have taken, or are currently taking, an introductory calculus course. If you have not studied calculus before, this course will teach you the rules in a simple way so that you can apply them to physics problem solving. Lectures in the course will assume that you have read the textbook and focus on problem solving and the clarification of key concepts. Students will take the same exams as USM students taking a similar course; passing these exams will lead to college credit granted by USM.

Focus Standards: **TBA**

Electives

Students may elect to take these courses at any time.

Introduction to Astronomy

Look up into the night sky, and look out on the Universe, and far, far back in time: There is a whole lot of space out there. From our own solar system with its single star, planets, moons, and other assorted collections, to the farthest reaches of nebulae, clusters, and other galaxies, there is a lot to learn, too. In this introductory course students will examine the nature and behavior of space objects, consider

both the imagined and real history of space exploration, and access myriad online resources to see what we're learning about the sun, the edge of the solar system, and the latest images from the Martian surface.

Focus Standards: IP-DAI, SS-U, SS-ES

Micro-Anatomy & Pathology

The eukaryotic cell is a miniature version of your body, burning fuel to do work, growing and multiplying and maintaining a delicate balance of all things to keep itself (and you) alive and healthy. What happens when these cells are attacked by intruders, like viruses? How does cancer start and spread from one cell to the next? How is bacteria (the oldest form of life on Earth) different from the cells that make you up? What do all cells, all living things have in common at the cellular level? These topics and many others will be our focus of study.

Focus Standards: IP-DAI, LS-BE, LS-SP

World Languages

Chinese	French	Spanish
Mandarin for Novices Intermediate Mandarin I Intermediate Mandarin II Chinese Culture Chinese Handwriting & Calligraphy Mah Jongg & Chinese Chess	French I French II French III & IV French Culture	Spanish I Spanish II Spanish III Spanish IV Spanish Culture Spanish Literature

Mandarin

Mandarin for Novices

2 Terms

This multimedia, game-based course for beginners in Chinese turns adventures and activities into rigorous lessons in grammar and vocabulary. Students learn the elegant simplicity of Chinese grammar and the subtleties of Chinese pronunciation through entertaining lessons that give a base for conversational ability and listening comprehension. Students build a foundation for reading and writing in the Chinese language through adaptive technology that lets them choose an approach that works best for them. Engaging graphics, videos, and games keep them interested, and make learning a new language exciting. The presentations will be lively and will progress with careful attention to the needs of the students. **No** prior knowledge of Chinese language is required.

Focus standards: **TBA**

Intermediate Mandarin I

2 Terms

Emphasizing the use of Mandarin for active communication, this course helps students to develop the ability to understand spoken Mandarin in familiar contexts and to express themselves coherently, resourcefully, and with reasonable fluency and accuracy in both written and spoken mandarin. Students learn the elegant simplicity of Chinese grammar and the subtleties of Chinese pronunciation through entertaining lessons that give a base for conversational ability and listening comprehension. Students build a foundation for reading and writing in the Chinese language through adaptive technology that lets them choose an approach that works best for them. Suggested preparation: Students should have completed Mandarin for Novices prior to enrolling in Intermediate Mandarin I.

Focus standards: **TBA**

Prerequisite: Mandarin for Novices

Intermediate Mandarin II

2 Terms

This is the third year of an elective course that is designed to further enhance foreign language skills and to prepare students for living in a global society. Students continue use compelling stories, games, videos, and multimedia experiences in Intermediate Mandarin II. Classes are designed to continue developing vocabulary, deepening the understanding of word formation and sentence structure of the Chinese language, and further developing listening, speaking, and writing skills. Cultural topics will also be presented. This course may lead to meeting college entrance requirements. Suggested preparation: Students should have completed Intermediate Mandarin I prior to enrolling in Intermediate Mandarin II.

Focus standards: TBA

Prerequisite: Intermediate Mandarin I

Chinese Culture

Students experience and discover the richness and variety of Chinese Cultures (Chinese dynasty, national customs, legendary story, music, Chinese painting art, Paper cutting and delicious food, and so on). These cultural materials and students' own experiences are the points of departure for understanding and having own insight. **No** prior knowledge of Chinese language is required.

Focus standards: TBA

Chinese Handwriting & Calligraphy

Students will study the basic techniques which include wrist & elbow movements, and pressing and lifting the brush/ pen. The presentation will show student own stuff when they achieve a balance between copying and blending in personal style and creativity. Students will achieve the "art" in their work by adjusting the strokes and angles of their pens or brushes. **No** prior knowledge of Chinese language is required.

Focus standards: TBA

Mah Jong & Chinese Chess

The game of Mahjong & Chinese Chess are an excellent mental workout for keeping the mind sharp. With less luck, more strategy and calculation, students will learn the skill how to against other 3 or 5 opponents in the game. Students can unconsciously grasp of listening, speaking, reading of Mandarin with a lot of fun! **No** prior knowledge of Chinese language is required.

Focus standards: TBA

French

French I

2 Terms

Students will be introduced to the language in a conversation-centered setting. The

course will emphasize listening and speaking skills working toward proficiency in practical French. Students will also study basic reading and writing skills, and explore Francophone cultures through authentic texts. **No** prior knowledge of French language is required.

Focus standards: **TBA**

French II

2 Terms

Emphasis will be on improving vocabulary and deepening conversational skills so that students can acquire fundamental oral and written proficiency in the language. Through consistent exposure to the French language, students will develop the ability to comprehend, speak and write.

Focus standards: **TBA**

Prerequisite: Successful completion of French I or demonstrated proficiency in the language

French III & IV

2 Terms

In this challenging course, students will continue to deepen their proficiency in French by practicing conversations, reading authentic texts, and writing. Possible texts include *Le Petit Prince*, *Persepolis*, and *Astérix le Gaulois*. Students will learn about francophone cultures in the target language. The emphasis will remain on practical use of the language, and by the end of this course students should be able to communicate basic needs to native speakers.

Focus standards: **TBA**

Prerequisites: Successful completion of French 2 or demonstrated proficiency in the language

French Culture

Through participatory adventures, multi-media presentations, and human interactions, students will experience the diverse culture of another country with a rich and expansive history. Students will have the opportunity to explore the traditions, music, and literature of a European country with which the United States has a long shared history. While students will have the opportunity to learn French language, no previous experience with the language is required.

Focus standards: **TBA**

Spanish

Spanish I

2 Terms

Students will be introduced to the language in a conversation-centered setting. The course will emphasize the development of listening and speaking skills of basic Spanish. Students will be working towards proficiency in simple conversation by using essential grammar concepts that will be the basis of this cumulative curriculum. **No** prior knowledge of the Spanish language is required.

Focus standards: **TBA**

Spanish II

2 Terms

Students will continue their study of Spanish with an emphasis on broadening vocabulary and developing conversational skills to a proficient level. Curriculum will center around authentic sources of the language like film and text, to be followed by frequent speaking and writing activities.

Focus standards: **TBA**

Prerequisite: Successful completion of Spanish I or demonstrated proficiency in the language

Spanish III

2 Terms

Students in this above proficiency course will communicate with each other and their teacher in Spanish 90% of the time. They will study advanced grammatical concepts and verb tenses that will deepen their communicative ability in the language. Students will be exposed to authentic sources of Spanish from texts and film which will comprise the cultural aspect of the curriculum. There will be a large writing and reading component to this course that aims to prepare them for effective communication in a native Spanish environment as well as for the Spanish IV course.

Focus standards: **TBA**

Prerequisite: Successful completion of Spanish II or demonstrated proficiency in the language

Spanish IV

2 Terms

In this intensive course, students will deepen their facility with the language by abiding by a Spanish-only pledge and by studying nuanced grammatical concepts including the subjunctive mood and a pan-hispanic vocabulary with a focus on colloquialisms. The aim of this course is to develop an expressive use of Spanish by reading authentic texts such as *Don Quixote*, *Cien años de soledad*, *Pedro Páramo*, *La vida es sueño*, and works by Pablo Neruda. Culture of the Spanish-speaking world will round out this challenging and advanced curriculum.

Focus standards: **TBA**

Prerequisite: Successful completion of Spanish III or demonstrated proficiency in the language

Spanish Culture

This interactive course aims to bring the dynamic culture of the wide Spanish-speaking world to our students. Through topics ranging from identity, geography, fine and performance arts, holidays and celebrations, cuisine, literature, film, and historical context, students will develop an appreciation of the cultures of South and Central America and the Iberian peninsula. While students will have the opportunity to learn Spanish language, no previous experience with the language is required.

Focus standards: TBA

Spanish Literature

This course will present classical literature of the Spanish language to our ambitious students. Through a curriculum of works spanning from the Golden Age to post-modernism, students will have access to some of the most renowned prose and poetry produced by writers of the Spanish language. Students will read these translated works and reflect on them through class discussion and their own writing. No prior knowledge of Spanish is required. This course is taught in English.

Online Languages/Rosetta Stone

Foreign Language Independent Study

Students will use technology (such as Rosetta Stone) to learn a language. Students will need to be able to work in a highly individualized and independent environment, while having access to instructional support and regular conversation with native speakers. Regular reports to students and parents on progress will be provided.

Focus standards: TBA

Other Course Opportunities

College Courses*

Internship/Apprenticeship*

Online Course opportunities*



Baxter Academy
for Technology and Science

Student Advisory

Baxter begins each day with ten minutes of Advisory and holds two 30 minute advisory periods per week. Advisory groups are maintained all four years and curriculum includes citizenship, goal-setting, college and career exploration, and student-led conferences.

Purposes of Advisory at Baxter:

- To provide *individual support*. To ensure that there is at least one adult who knows the student well, both personally and academically, who is continuously engaged with the student and family/guardian, and who guides and advocates for the student during their entire time at Baxter Academy.
- To provide *social support*. To provide a safe venue for addressing school-wide and grade-level issues.
- To provide *academic support*. To help students set goals, get organized, and explore the possibilities for life after Baxter
- To create a cohesive community of learners
- To guide students in managing and optimizing their Baxter experience
- To help students prepare for life after Baxter
- To help build a culture of safety and respect, one that understands the value of play and collaboration

Advisory activities might include reviewing the Baxpectations and Baxtitution, working on digital portfolios, preparing for student-led conferences, learning about personal finances, or participating in a community service project.



Baxter Academy
for Technology and Science

Flex Friday Projects

Real life is about solving long term problems, learning from failure, building on previous work, working with colleagues, design review and iteration, time and resource management. None of these are possible within the constraints of a conventional school schedule.

Flex Friday is designed to alleviate many of these issues. It will provide large blocks of time for students to perform lengthy experiments, immerse themselves in project design or research, and, through error analysis, learn from failure. Because all students will have the same time available, groups of students will be able to coalesce around projects of common interest and work collaboratively without scheduling difficulties. The significant amount of time will permit students to work through a rigorous autonomous open-ended project development process, reaching beyond textbooks or previous learning to access the necessary information. Teachers, freed from other teaching obligations, will be able to focus on advising students as they work through their projects, assisting with skill development and making sure they ask the right questions, follow through on their work plans and collaborate effectively within work groups. The blocks of time will facilitate development of web-based research skills and work with collaborating businesses and other institutions.

While the nature of student projects will vary, the underlying lessons will be the same. Some students may choose to work in a large group to develop an experimental model for a fish hatchery, others may want to work individually on a writing a database program with a local company. In both cases students must work through prescribed procedures, both cases require students to define the project objectives, be responsible for time, budget and project management, and devise iterative creative solutions to a given problem. In most cases (it will be strongly encouraged), projects will give back to the community. These are the skills needed to succeed in the real world; they require time, responsibility and creativity; and they are found outside of the standard high school curriculum.

A student's flex friday project begins with an idea. Finding student collaborators, and working with a teacher, students prepare a formal proposal describing the project details. Schedules, finances, outcomes, and connections to learning are all integral parts of that proposal. Once completed, the proposal is submitted for approval (or

revision), and then the project and the project team is off and running.

Project members work with a faculty advisor to keep the project moving forward. All students participate in an open and public culminating Project Presentation at the end of the year.

A Sampling of Flex Friday Projects

Baxter Cookbook	Mockumentary
Baxter Fundraising	Problem-Based Learning
Baxter International	Recording Studio
Cetacean Toxicology	Robotic Arm
Drawing Robot	School Store
Dynamically Stable Bicycle	Stairwell Mural
Electric Stringed Instruments	Submersible ROV
Fundraising	Tiny House Design & Construction
GNU/Linux Server	Tug o'War Robot/Windblade
Human-Powered Hovercraft	Weather Balloon
Little Free Libraries	Wooden Surfboard

In 2014-2015, Baxter students participated in 63 different projects.

In 2013-2014, Baxter students participated in 38 different projects.



Baxter Academy
for Technology and Science

2015-2016 Academic Calendar

revised
April 2, 2015

Baxter Academic Calendar 2015-2016

printed
June 10, 2015

September 2015

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

October 2015

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

November 2015

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

December 2015

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

January 2016

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

February 2016

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29					

March 2016

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

April 2016

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

May 2016

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

June 2016

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

July 2016

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

August 2016

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

- 25** Holiday
- 21** School vacation
- 16** Off-Site Learning

Fall Term September 8 - November 24
Winter Term December 4 - March 18
Spring Term March 28 - June 10

- Intercession
- Intercession
- Opening/Closing

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