WELCOME TO THE UPPER SCHOOL ACADEMIC EXPERIENCE

Students and parents are invited to use this course catalog to chart a journey through Principia Upper School’s academic program, navigating the way to successful completion of a quality high school experience.

The Upper School curriculum is college preparatory and rooted in the liberal arts. Students—your active participation in required and elective classes will give you the skills and knowledge base to prepare you to make excellent choices throughout your life. You’ll find course descriptions for required English classes as well as innovative multidisciplinary electives. Math will play a key role in your education, but so will the fine and applied arts. Classes are taught by dedicated teachers who love their subjects. But more than that, they love helping students succeed!

A Principia education, however, is based on far more than solid academics. It is uplifted by the fact that all the teachers and students are practicing Christian Scientists. With its spiritual depth and intellectual breadth, our high school program is like no other in the world. And our Upper School graduates are a community of thinkers able to leaven human experience in whatever endeavors they choose to pursue.
2014–2015
Principia Upper School Catalog

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Principia Upper School is the high school unit of Principia School for Christian Scientists.

13201 Clayton Road
St. Louis, Missouri 63131
314.434.2100 or 800.218.7746
www.principiaschool.org

Assistant Principal: 314.514.3040
Academic and College Counseling: 314.275.3515
Principia is accredited as an independent college preparatory school by the North Central Association of Colleges and Secondary Schools (NCA) and the Independent Schools Association of the Central States (ISACS).

Upper School is Principia’s high school (grades 9–12). Other units are Early Childhood, Lower School (grades 1–5), and Middle School (grades 6–8). The School is located on a wooded, 360-acre campus in suburban St. Louis, Missouri. Principia College is located about 40 miles away, in Elsah, Illinois. Approximately 250 students from states coast to coast and from many other countries attend the Upper School. About 50 percent of them live on campus, in our Boys’ and Girls’ Dorms.

A BRIEF HISTORY

Though established nearly 120 years ago, Principia’s mission remains as fresh and relevant as ever—to serve the Cause of Christian Science.

In the late 1800s, young mother and dedicated Christian Scientist Mary Kimball Morgan was concerned about the moral and spiritual dimensions of education for her two sons. In addition to basic practical education, she wanted for them an environment that would foster sound moral values and spiritual growth. Finding no established institution that met these criteria, she began to teach the two youngsters herself in 1897.

As other Christian Scientists learned of the informal school and its goals, they asked if Mrs. Morgan would teach their children, too. Soon her classroom had to move from the loft of her St. Louis carriage house to a two-room store and, a few years later, into much larger premises.

In 1906, Principia graduated its first high school class. In 1912, it added a junior college—one of the first in the nation. And in 1934, Principia’s new four-year liberal arts college in Elsah, Illinois, graduated its first class.

Principia today comprises two modern campuses enrolling about 900 young Christian Scientists from around the U.S. and many other countries. The inspiration that led Morgan to establish Principia and to dedicate more than 50 years to its orderly expansion has resulted in a lasting legacy of love for thousands of current and future Principians.

Detailed background on Principia, as well as its specific purpose and policies, are found in Education at The Principia, a compilation of Morgan’s talks and writings, and As the Sowing, a history of Principia’s first 50 years, by former Dean of the College, Edwin S. Leonard, Jr.

CHARACTER EDUCATION

“The Principia takes the position that education in its fullest sense cannot be confined to academic subjects but includes the building of character.” — Principia Policy 12

- Each week begins with a Monday morning chapel. Faculty, staff, or guest speakers share inspirational, healing messages and students are encouraged to work with these themes throughout the week.

- Community meetings are held regularly as a venue for addressing aspects of character or other topics of interest to the student body.

- Each year, guest speakers are invited to campus to speak on topics related to character.

SPECIAL PROGRAMS

- Principia sponsors an on-campus concert and lecture series and arranges for students to attend a variety of arts offerings throughout the St. Louis area.

- For several years, the St. Louis Chapter of the Freedoms Foundation has offered the opportunity for selected Principia students to attend a four-day leadership conference in Valley Forge, Pennsylvania, in March. The application process is under the auspices of the Social Studies Department. Expenses are paid by the local chapter and Principia.

- Freshmen, sophomores, and juniors go on weeklong annual educational journeys to locations such as New Mexico, the Dominican Republic, and New England. Occasional optional trips include interdisciplinary study in the Grand Tetons/Colorado Rockies, a biology trip to the rainforests and coral reefs of Belize, and a Bible history trip to Israel.

- Senior projects, in which seniors undertake individual learning and work closely with sponsors, take place during the final month of school. These projects provide valuable opportunities to explore a possible career field, learn new skills or perfect familiar ones, or take part in volunteer activities. They demand careful planning, self-discipline, and follow-through, and include a public presentation about the experience. Approval of teachers, administration, and parents as well as completion of regular class work is required before a senior project can begin.

- The annual, Broadway-style musical production each spring involves up to one-third of the student body—on stage, in the orchestra pit, and behind the scenes.
LEARNING RESOURCE CENTER

The Ridgway Learning Center houses the Upper School Library, Media Center, and Christian Science study room. The Center is wireless throughout so students can use their tablet computers in any of the learning spaces.

- The Upper School Library provides more than 20,000 print resources to support the curriculum and independent research as well as recreational reading. In addition, subscription databases offer an extensive online collection of periodicals, academic journals, reference materials, films, e-books, and more. Current students and their families, faculty, and staff members can access the databases from campus, home, or anywhere with an Internet connection.

- Classes often meet in the library and students may use the library during their free study hall periods and before and after school. Students may also borrow materials from the Marshall Brooks Library at the College.

- The Media Center is home to the Mac Lab, digital darkroom, and TV/recording studio. Photography, web and digital design, desktop publishing, and video production classes meet here.

TWENTY-FIRST-CENTURY LEARNING

As a part of our commitment to preparing learners for the promise and potential of the twenty-first century, Principia provides each Upper School student with a portable tablet computer. This tool enables teachers and students to deepen and extend learning opportunities. Students are required to attend training sessions that include a discussion about our Technology Use Principles, an overview of the hardware and software, and information on caring for the tablet. In order to use this tool most effectively, access to the Internet at home is expected as assignments often incorporate Internet use.

Keyboarding: Students must demonstrate keyboarding competency. Those who do not pass a competency test will be enrolled in a class until a minimum skill level is achieved.

ACADEMIC AWARDS

Students who earn a 3.7 grade point average or higher are placed on the honor roll.

Awards in different fields and interest areas, including academics, music, art, dance, and athletics, are announced at an annual ceremony each May. Occasionally, local and national competitions (in math and world languages, for example) offer awards.

Election to the Principia chapter of the Cum Laude Society is on the basis of outstanding academic performance. Seniors who have maintained a rigorous academic record for junior and senior years and have attended Upper School for both years are eligible. GPA and SAT/ACT scores; AP, honors, and solid courses taken; and good citizenship are among the considerations. A faculty committee makes the final selections.

COLLEGE COUNSELING

Principia’s Academic and College Counseling Office has a strong individualized program to guide and support students and parents through the college search and application process. In addition to meeting and talking to students and parents on a regular basis, the office provides a College Resource Handbook that covers the full range of relevant topics. These include a college-planning calendar and detailed information about the college search process, standardized testing, the application process, applying to Principia College, college athletics, and financial aid. You may go to www.principiaschool.org/collegecounseling for an online version of the Handbook. The office also has a library of helpful books that may be checked out by students and parents.

As part of the application process, some colleges and universities may request Principia Upper School to report on certain aspects of the candidate’s disciplinary record. The Academic and College Counseling Office will report disciplinary information when asked to do so. For further information, please refer to the College Resource Handbook.

AFTER GRADUATION

Principia Upper School graduates are accepted at many fine institutions. A representative list of colleges to which they have recently been accepted includes: American University, Barnard College, Bates College, Boston University, California State Polytechnic, High Point University, Ithaca College, Marymount Manhattan College, Missouri University of Science and Technology, New York University, Northeastern University, Principia College, University of California (multiple campuses), University of Missouri, the University of Texas, and Washington University in St. Louis.

GRADUATION HONORS

Seniors who have been inducted into the Cum Laude Society are awarded diplomas with cum laude. Seniors who have maintained a cumulative grade point average of 3.7 or higher during their enrollment at Principia are awarded diplomas with honors.
GRADUATION REQUIREMENTS

ATHLETICS: Eight seasons over four years.

Note: High school credit may be granted for courses taken at the eighth-grade level or lower at the discretion of the assistant principal.

Credit by Correspondence: Credit may be earned through correspondence by prior permission only.

A diploma is awarded upon the satisfactory completion of academic and citizenship requirements, as well as completion of the entire senior year at the Upper School. The granting of a diploma may be subject to administrative review (academic, social, and/or financial) by the School in any given individual situation.

Families are encouraged to work closely with their child’s academic guidance counselor to chart a course of study that supports their child’s interests and preparation for college within the Upper School’s graduation requirements. Students must earn minimum GPAs for continuation and graduation.

PREPARING FOR A COMPETITIVE COLLEGE

The strong, successful completion of the Upper School’s minimum graduation requirements is an acceptable record for many public and private colleges and universities. For highly competitive institutions, a student should take as many honors and Advanced Placement courses as possible. We recommend distributing the courses as follows, if possible:

- **English:** at least 4 credits
- **Social Studies:** at least 3 credits; 4 for focus area
- **Mathematics:** at least 4 credits; 5 or more if possible
- **World Languages:** at least 4 credits in the same language; if two languages, 2 credits in each
- **Science:** at least 4 credits
- **Arts:** at least 2 credits; more for a focus area

ADVANCED COURSES

The Upper School offers Advanced Placement (AP) courses in English Literature, English Language and Composition, Calculus (AB, BC), Statistics, French 5, Spanish 5, and U.S. History. These courses prepare students for the AP exam. A strong AP score (at least 4 on a 5-point scale) may earn advanced placement or credit at some colleges.

A student’s achievement in prerequisite courses and readiness for advanced work determine a teacher’s recommendation for placement in an advanced-level course.
ATTENDANCE POLICY

To benefit from the school experience, it is essential that each student maintain punctual daily attendance in all assigned classes. Class attendance is necessary for learning and academic achievement, as well as for developing habits of punctuality, dependability, and self-discipline. Research indicates a direct relationship between attendance and classroom success: students who have good attendance generally achieve higher grades, enjoy school more, and are more employable after leaving high school. Our attendance policy, stated below, is intended to help students develop regular and punctual attendance and to maintain the academic standards necessary for earning credit.

If a student exceeds ten (10) total absences in a course within one semester, he/she will lose credit in that course.

A parent will be notified by phone when the student has reached five absences and eight absences each semester.

If a student reaches 10 absences in a class during a semester, the student will meet with the assistant principal to establish an attendance contract for the remainder of the semester. Any further absences during the semester will result in a loss of credit for the class in question.

NOTICE: CHANGES

The Principia Upper School reserves the right, as necessary, to withdraw courses at any time, to change fees, regulations, and requirements affecting graduation and curricula, or to change any other regulations affecting the student body. Such changes, and the dates they become effective, will be decided by School authorities and may affect both present and prospective students.
The Applied Arts offerings help students meld creative and expressive interests with the development of personal, interpersonal, and workplace skills. All Home Arts and Media Arts courses are offered upon sufficient demand, and not all may be offered each semester.

**BIBLE SEMINAR**
*One semester, one half credit. Offered both semesters. Required of all sophomores.*

Students explore the Bible through a variety of lessons and activities, including but not limited to the following: history and chronology of the books; how to study the original Greek and Hebrew texts; the Bible's partnership with *Science and Health with Key to the Scriptures* by Mary Baker Eddy; and research-based projects and presentations. The intended outcome of the course is to enable students to know and love the Scriptures.

**COMMUNICATIONS**
*One semester, one half credit. Offered both semesters. Required of all freshmen.*

Students study basic principles of preparation and delivery of an effective speech. Four types of speeches are given: interview, personal experience, demonstration, and persuasive. Students practice sharing “cold” and prepared readings from literary fiction, poetry, and even the lyrics to songs. They also study *Robert’s Rules of Order* for running an effective meeting and participate in mock meetings to practice motions, amendments, debates, and more.

**JOURNALISM**
*Offered both semesters. May be taken for one half credit or one full credit. Students earn applied arts credits. Does not fulfill the English requirement for graduation.*

Open to students in all grades interested in writing for and publishing the school newsmagazine, *The Voice*. Skills learned include interview techniques, news analysis, feature and sports writing, and page design and layout. *The Christian Science Monitor* and local newspapers are used for analysis and discussion.

**MUSIC THEORY**
*One semester, one half credit.*

For description, see listing under Visual and Performing Arts.

**PHILANTHROPY/COMMUNITY SERVICE**
*One semester, one half credit. Offered both semesters.*

This class is about caring and sharing in the truest sense of these words. Students plan and promote volunteering, and encourage others to learn to serve and serve to learn. Students also choose an organization to support, checking its authenticity and comparing administrative expenses to the funds that actually reach the program destination. Students find a way to raise monies for their philanthropic contributions through providing personal services (yard work, babysitting, etc.) or valued products. The standard for the work in this class is “Does our volunteering ease the paths of others?”

**SPEECH AND DEBATE**
*One half credit, applied at the close of the speech and debate season. Open to all students wishing to participate in competitive speech and debate.*

This course covers aspects of logical reasoning and argumentation as well as the basics of good communication. Weekly class sessions focus on preparing to compete in at least one tournament event per semester.

**HOME ARTS**

**GOURMET FOODS**
*One semester, one half credit.*

This course is designed to enable students to cook foods using basic ingredients and recipes from the *Joy of Cooking* cookbook as well as from other proven recipe sources. We develop confidence in the kitchen, from reading and interpreting recipes through to execution. Students cover topics such as food origins, cutting skills, sanitation, proper food storage, cooking equipment, cooking techniques/tips, and planning and shopping for balanced meals. Students gain skill and proficiency in preparing entrées, breads, desserts, appetizers, and side dishes.

**HOUSE AND INTERIOR DESIGN**
*One semester, one half credit.*

Learn how to create a well-designed and coordinated home environment. The fundamental principles of interior design covered in this class include the following: architecture, walls, floors, ceiling, windows, furniture, fabrics, lighting, color schemes, mixing accessories of various shapes and sizes with different patterns, and using colors in the right proportions.

**SEWING**
*One semester, one half credit.*

Students learn the use of sewing equipment and construction techniques, as well as how to make pattern and fabric selections. Each student will revamp an article of clothing. Students will need to purchase fabric for two or more projects, at an estimated cost of $25–$75.
YOU AND YOUR MONEY
One semester, one half credit.
This course is designed to assist students with being wise money managers. Topics covered include setting goals, building a budget, living within your means, planning, spending, personal banking, borrowing money, grocery shopping, car purchasing, and apartment/domicile hunting.

THE SAMPLER
One semester, one half credit.
This course includes elements from four Home Arts courses—Gourmet Foods, House and Interior Design, Sewing, and You and Your Money. Students will develop confidence in the kitchen, through reading and understanding recipes and practicing cooking techniques. After learning hand-sewing stitches, students will learn to operate a sewing machine and create a garment from a pattern. Students will learn that having a financial plan is key to ensuring financial peace. Finally, creating a realistic floor plan will help students recognize the value of furniture style, placement, lighting, color schemes, and appropriate accessorizing when building a comfortable and practical living environment.

MEDIA

DESKTOP PUBLISHING
Offered both semesters. May be taken for one half credit as well as one full credit. Teacher interview required to be considered for acceptance. Does not fulfill the English requirement for graduation.

Students take part in publishing Upper School’s yearbook, The Blade. Skills in layout, writing copy, and photography are taught and put into practice. The yearbook is a student publication of two hardcover annuals that record, in a creative and entertaining way, the story of all the students who attend Principia Upper School in a given year. It is a substantial responsibility and requires students who are committed to the project.

FILM STUDIES
Spring semester, one half credit. Grades 11 and 12.
The students will gain an appreciation for that most collaborative of arts, filmmaking. They will research, watch, and review classic movies such as Citizen Kane, Casablanca, Modern Times, Vertigo, The Searchers, The Great Escape, and Dr. Strangelove. They will learn some of the history of film and techniques used by the masters of the medium.

PHOTO 1
Fall semester, one half credit. Grades 11 and 12.
This is a digital photography course. Images may be shot on film, but all image manipulations will be done on the computer using Adobe Lightroom and Photoshop. Composition will be stressed, but students will also get a strong foundation in digital imaging skills. All work will be in grayscale. Students will learn the best methods for converting color images to black and white, evaluating exposure and contrast, and making fine art prints. The final exam requires submission of a portfolio of work. Students will benefit from having their own camera with manual exposure control, but the School does have a limited number of digital cameras available.

PHOTO 2 (COLOR PHOTOGRAPHY)
Spring semester, one half credit. Grades 11 and 12. Prerequisite: Photo 1.

This course is for students who wish to continue their exploration in the world of digital imaging. It delves more deeply into the creative possibilities of Photoshop, and students explore and experiment with Photoshop techniques. A portfolio of student work is required as the final exam. Students will benefit from having their own camera with manual exposure control, but the School does have a limited number of digital cameras available for student use.

VIDEO PRODUCTION
Offered both semesters, one half credit. Grades 11 and 12. Fall semester covers advertising; spring semester covers sitcoms.

Students will learn how to produce videos for different genres, each having its own unique production techniques. Students plan, script, shoot, and edit videos. Their finished products will be burned to DVD and be viewable on the Internet.

WEB/MEDIA
Fall semester, one half credit. Grades 11 and 12; grade 10 by special permission. Prerequisite: Permission of instructor.

This is an in-depth course in the use of HTML, CSS, JavaScript, and Flash to create innovative and useful webpages. We explore the practical and artistic qualities of a well-designed website. Students will build their own website that will go live on the Internet. Assignments require creative problem solving, quality work, an understanding of design concepts, and computer skills.
English courses focus on achieving effective communication in writing, reading, listening, and speaking. The department is committed to enhancing students’ ability to think deeply through intelligent analysis of great literature and communicate effectively through clear and persuasive essay writing. Teachers provide individual attention for students at all levels, encourage research, and stress vocabulary expansion and good diction.

Honors and AP level classes are open to qualified current students by recommendation of the English faculty. Newly admitted students who wish to participate in an Honors or AP level English class should inform the Admissions Office, which helps facilitate the best placement of incoming students.

ENGLISH 1: INTRODUCTION TO LITERATURE
Two semesters, one credit. Required of all freshmen not enrolled in English 1H.

Students engage in reading and writing about literature from a variety of genres: epic, novel, drama, poetry, and short story. Study of the literature focuses on strategies that enable students to decode and analyze the devices used by authors. Homer, Shakespeare, Steinbeck, and Twain are among the authors studied. The writing program is focused on increasing comprehension and use of information acquired through reading. Students progress through structured paragraph writing to development of structured thesis essays. Illustrated journaling provides an artistic lens for students to use in their study of literature. Vocabulary, grammar review, oral presentation, debate, and an introduction to library research are included throughout the year.

ENGLISH 1H: HONORS
Two semesters, one credit. Open to qualified freshmen by teacher recommendation.

Focus and content similar to English 1, with more depth and breadth and an emphasis on abstract thinking skills in discussion, reading, and writing. An accelerated pace is maintained.

ENGLISH 2: WORLD LITERATURE
Two semesters, one credit. Required of all sophomores not enrolled in English 2H.

Students read ancient myths from around the world to study archetypes in literature through the centuries. Homer’s *Iliad* provides exposure to Ancient Greek culture, and reading the book of Genesis as literature exposes them to biblical history. Selections of European, Asian, and African literature are also read. Frequent writing assignments include thesis essays, creative paragraphs, and poetry. Writing skills are strengthened through regular workshops, study of vocabulary and grammar, and individual meetings with the instructor. Digital projects promote digital literacy by requiring copyright compliance and appropriate use of media to publish literature-based assignments.

ENGLISH 2H: HONORS
Two semesters, one credit. Open to qualified sophomores by teacher recommendation.

Students study literature from various cultures around the world through the Bible, myth-based poems, short stories, plays, and novels. From thesis essays to inspired poetry, honors students write extensively. Vocabulary and grammar development are addressed both generally, through writing workshops, and specifically, within each student’s writing. Students are encouraged to bring to the class their unique interests and points of view. This course includes an independent research project.

ENGLISH 3: AMERICAN LITERATURE
Two semesters, one credit. Required of all juniors not enrolled in English 3: Honors or AP.

Students consider the development of American literature through a variety of works ranging from Puritan to postmodern. Whole and partial works of representative authors are read and discussed. Thesis essays expressing critical interpretations of these works as well as creative responses are stressed. Reflective journal writing, vocabulary building, grammar workshops, oral presentations, and library research are also incorporated over the course of the year.

ENGLISH 3H: HONORS
Two semesters, one credit. Open to qualified juniors by teacher recommendation.

Students study a variety of classics of American literature at an accelerated pace. In addition to studying the work of such writers as Hawthorne, Emerson, Thoreau, Twain, Fitzgerald, Salinger, and Morrison, plus a variety of poets, students also begin to evaluate literary criticism and to synthesize this criticism into their essays. Writing projects (both in and out of class) are specifically geared to prepare students for AP and honors work as seniors.

ENGLISH 3: ADVANCED PLACEMENT [AP ENGLISH LITERATURE AND COMPOSITION]
Two semesters, one credit. Open to qualified juniors by teacher recommendation.

Students explore challenging college-level American and British literature in preparation for the Literature and Composition Advanced Placement Exam. Students read and analyze works ranging from Shakespeare to Williams, from Ellison to Achebe, and from Hawthorne to Morrison. Poetry includes the work of Yeats, Whitman, Dickinson, Frost, Millay, and Eliot. Students undertake frequent timed-writing responses to prompts. In addition, in-depth, out-of-class writing assignments demand a high level of analysis and synthesis, often requiring secondary-source research.
ENGLISH 4: TOPICS IN BRITISH LITERATURE
Two semesters, one credit. Required of all seniors not enrolled in English 4: Honors or AP.

Seniors study representative authors in the literary history of Britain, from Chaucer and Shakespeare to authors of the modern era. Class work includes emphasis on the development of the thesis essay and creative writing. All students present a five-minute “senior speech” to the community.

ENGLISH 4H: HONORS
Two semesters, one credit. Open to qualified seniors by teacher recommendation.

Students study a chronological list of titles selected from classic British literature at an accelerated pace. Frequent in-class writing assignments and out-of-class writing projects are designed to prepare students for college-level work.

ENGLISH 4: ADVANCED PLACEMENT [AP ENGLISH LANGUAGE AND COMPOSITION]
Two semesters, one credit. Open to qualified seniors by teacher recommendation.

This course engages students in developing the skills to become insightful and astute readers of prose writing from various periods, disciplines, and rhetorical contexts. Students also work to become skilled writers and write in a variety of forms (narrative, exploratory, expository, argumentative) on a variety of subjects. The major objective of this course is to enable students to write effectively and confidently across the curriculum at Upper School, in college, and in the future. This course prepares students for the Language and Composition Advanced Placement Exam.

ENGLISH FOR SPEAKERS OF OTHER LANGUAGES
Two semesters, one credit. Does not fulfill English requirement for graduation.

ESOL is open to students who already speak more than one language but for whom English is not the native language. This course focuses on effective communication in English through the development of written and oral skills. Reading comprehension, vocabulary, grammar, idioms, pronunciation, conversation norms, and cultural awareness constitute the foundation of the curriculum. Collaborative activities provide the students with opportunities to develop oral presentation skills. Students may exit the ESOL program at the end of their first year if they meet the School reading requirements. If a student has not met the requirement, the teacher and the student will determine whether the student should stay in ESOL or enroll in Developmental Reading.

CREATIVE EXPRESSIONS IN NATURE
Winter trip, only in years when trip is offered. No credit.

Prerequisites: sophomore, junior, or senior standing; approval of faculty and administration.

This interdisciplinary course explores the relationship between natural science and art, and combines scientific observation of nature, journal writing, drawing, and photography. Students will conduct research using the scientific method. Observations will be recorded in student journals through note taking and sketching. Photography will be used as an additional method of documentation.

The course may include one week at the Teton Science School in Jackson Hole, Wyoming, or at The Link School in Buena Vista, Colorado. Fee charged, based on current transportation rates and other factors.

DEVELOPMENTAL READING
One semester, one half credit in applied arts. Does not fulfill English requirement for graduation.

New Upper School students and students returning after an absence take a standardized reading test. If results show a student reading below grade level, the student is enrolled in a reading class on a semester-by-semester basis.

In the reading lab, students strengthen reading skills in order to function more effectively in all academic subjects. The teacher helps students with reading assignments, guides them through computer activities that develop reading skills, and provides challenging learning opportunities that improve comprehension, vocabulary, and reading rate. To exit the program, the student must demonstrate grade-level reading skills on the standardized reading test.

JOURNALISM
Offered both semesters; may be taken for one half credit as well as one full credit. Students earn applied arts credit. Does not fulfill the English requirement for graduation.

See description under Applied Arts.
Mathematics usage in society has expanded dramatically in recent decades. The information explosion and advances in technology have widened the scope and multiplied the methods of applied mathematics.

The Math Department urges that most students take four years of mathematics. In all math classes, graphing is emphasized for visualizing concepts. In addition, since computing is a discipline that influences nearly all other areas, we suggest that students take the class in computer science.

**NOTE:** Students are required to have their own graphing calculator. Principia will make graphing calculators available for loan during the academic year, or students may purchase their own. (We recommend the TI-83+, 84+, or Silver Edition.) Geometry students may use a scientific calculator instead. In addition, some courses use mathematical software, available at no cost to the students on their tablet computers.

**ALGEBRA 1 (BASIC, REGULAR)**
Two semesters, one credit.

Traditional topics of beginning algebra are taught, with an emphasis on linear functions. Simplifying algebraic expressions, solving linear equations, and solving systems of equations are important topics. Applications to geometry are explored. Considerable attention is given to graphing.

**ALGEBRAIC PRINCIPLES AND PROBLEM SOLVING**
Two semesters, one credit. For students who have completed Algebra I, but could benefit from extra preparation before taking a rigorous geometry course.

This course reinforces algebraic manipulation skills and improves students’ number sense while introducing vocabulary, reasoning, and problem-solving skills in preparation for geometry. Each topic is presented in context and explored through applications.

**GEOMETRY (BASIC, REGULAR, HONORS)**
Two semesters, one credit. For students who have completed Algebra 1.

This course covers many concepts of Euclidean geometry including definitions, postulates, and theorems. Areas of study include angles, parallel lines, triangles, congruency, similarity, polygons, circles, constructions, and coordinate geometry. Students revisit the concepts of shape and measurement and combine their algebra skills with analytical thinking in order to prove mathematical ideas. Emphasis is placed on accuracy of the written word and visual models.

**ALGEBRA 2 (BASIC, REGULAR, HONORS)**
Two semesters, one credit. For students who have completed geometry.

Facility with algebraic expressions, especially linear and quadratic forms, is emphasized. Powers, roots, polynomial and logarithmic functions, conic sections, and sequences are also explored. Honors students study in greater depth, including topics optional to regular and basic sections.

**FUNCTIONS, STATISTICS, TRIGONOMETRY**
Two semesters, one credit. For students who have completed Algebra 2 but who are not ready for a pre-calculus course of math analysis.

Algebraic and statistical concepts are integrated throughout this course, along with the study of trigonometric functions. Thus a broad base for future applications of math is developed, in addition to strengthening students’ background for a possible future course in pre-calculus. Full use is made of automatic graphers.

**MATH ANALYSIS (REGULAR, HONORS)**
Two semesters, one credit.

This course includes advanced algebra necessary for calculus, including polynomial, exponential, and logarithmic functions and sequences. There is also a very significant focus on the study of trigonometry in connection with circular functions, triangles, and polar coordinates. Transformations of graphs and mathematical modeling of data are also explored. The graphing calculator will be used extensively throughout the course.

**COLLEGE PREP MATH**
Two semesters, one credit. For students who have completed four years of high school math but have chosen not to take Advanced Placement mathematics.

This course is a unified study spanning topics from basic math through pre-calculus. Emphasis is placed on application problems and estimation skills. This course will review and develop the problem-solving tools students need for college entrance exams and for pursuing college majors requiring analytical skills and mathematical language. The graphing calculator is used periodically throughout the year.
**CALCULUS: REGULAR**
*Two semesters, one credit. Prerequisite: Math Analysis.*
This course is designed for students who are interested in an introduction to calculus. A hands-on approach provides students with the opportunity to experience many applications of calculus through experimental data collection and the use of technology. These applications lead to an in-depth analytical study of calculus. Topics in differential calculus are the main focus of the class, with a few topics in integral calculus explored as time permits. This course is not intended to be the equivalent of a first-semester college calculus course, but it will provide students with a strong foundation for future study.

**CALCULUS AB: ADVANCED PLACEMENT**
*Two semesters, one credit. Prerequisite: Math Analysis.*
This college-level class will prepare students to take the AB form of the Advanced Placement Calculus Exam. Both differential calculus and integral calculus are studied, with significant emphasis on the fundamental theorem of calculus. Algebraic, trigonometric, and transcendental functions are studied along with their applications. Students are required to have their own graphing calculators for this class and the Advanced Placement exam.

**CALCULUS 2**
*Two semesters, one credit. May be offered on an independent basis. Prerequisite: Calculus AB.*
Additional study in calculus for students who have successfully completed Calculus AB. Topics of study include additional techniques of integration, polar and vector functions, and the study of series. Students will be sufficiently prepared to take the BC form of the Advanced Placement Calculus Exam.

**STATISTICS: ADVANCED PLACEMENT [AP STATISTICS]**
*Two semesters, one credit. Prerequisite: Math Analysis or beyond.*
This introduction to the study of statistics includes exploratory data analysis, planning a study, probability and probability distributions, and statistical inference. Modern technology eliminates much of the calculation formerly needed and allows for the investigation of more realistic problems. Students completing this course are sufficiently prepared to take the AP exam. The graphing calculator is used extensively throughout the course.

**COMPUTER SCIENCE**
*Two semesters, one credit in mathematics. Prerequisite: Algebra 2.*
An introduction to the study of computers and programming. Students learn to write computer programs in C++ and other object-oriented languages. Students also study a variety of issues related to the use of technology in our society. An emphasis is placed on developing good programming habits and creative problem solving.
The importance of the sciences to everyday life today can hardly be overstated. Young people who are trained to observe and understand nature and the products of modern invention—through a better grasp of physics, chemistry, and biology—will be kinder to their environment, wiser as consumers, and better equipped to understand the impact of technological advances in these fields.

The Science Department recommends that the three required courses be Physics I, Chemistry, and Biology, starting with Physics I in freshman year. Students transferring to Principia after freshman year will develop a suitable alternative to this sequence with their counselor and the department chair. For those with a strong aptitude and interest in pursuing science or engineering in college, a fourth course is recommended. Several science electives are available.

**PHYSICS 1**
Two semesters, one credit. Can be taken concurrently with Algebra I.

This freshman-level inquiry-driven and project-oriented course is focused on identifying the basic forces that move us and why. In the first semester, all the types of applied force are presented and practiced; during the second semester, other forms of energy are surveyed in detail—nuclear, electrical, magnetic, thermal, light, and sound. As part of our STEM (science, technology, engineering, and mathematics) program, students collect and analyze data, using their math and technology skills to complete daily investigations. Students maintain a journal which documents all their work. They are challenged to think in a disciplined and rigorous way to formulate explanations and models that are supported by observation. The curriculum is designed to apply scientific principles to daily activities. Emphasis is placed on training students to reason scientifically.

**CHEMISTRY (REGULAR)**
Two semesters, one credit. Prerequisites: completion of Algebra I.

Chemistry is the study of matter and energy from a molecular point of view. Students will participate in regular inquiry-based laboratory experiments and comprehensive projects that allow the students to synthesize and transfer the chemistry they learn to the world around them. In this STEM course, students are expected to collect and interpret data, utilize the engineering design cycle, and implement collaborative learning strategies. Content includes, but is not limited to, atomic structure and the periodic table, reactions and equations, chemical calculations and the mole, gas laws, and acid-base chemistry.

**BIOLOGY**
Two semesters, one credit. Grades 11 and 12. Prerequisites: Completion or concurrent enrollment in Chemistry.

This course is offered to juniors and incoming seniors who have not had biology at another school. National Science Education Standards for secondary life sciences are followed. This course emphasizes the unity and interrelationships of living things. Major topics include cell structure and function, energy, cell processes, genetics, reproduction, evolution, biodiversity, populations and communities, humans and the biosphere, taxonomy, and ecology. Principia’s 360-acre campus provides numerous opportunities for field study in our own outdoor laboratory.

**CHEMISTRY: FUNDAMENTALS OF COLLEGE CHEMISTRY (HONORS/DUAL ENROLLMENT)**
Two semesters, one credit. Prerequisites: Chemistry and completion of or concurrent enrollment in Biology; successful completion of first-year Chemistry and Algebra 2 (B or better, every semester); and minimum cumulative GPA of 3.0. Requires instructor approval. Upon completion of this course, students receive credit at both the Upper School and at Principia College.

This introductory course sequence in college chemistry develops problem-solving and research skills. It covers atomic structure, stoichiometry, bonding, gases, liquids, solids, solutions, kinetics, and equilibrium concepts and includes labs. This is a rigorous, college-level class and is designed for college-bound students interested in majoring in science or engineering.

**PHYSICS 2**
Two semesters, one credit. Prerequisite: concurrent enrollment or completion of Math Analysis or Functions, Statistics, Trigonometry.

While preparing students for college physical science and engineering, this course provides training in reasoning and problem solving. It links algebra, trigonometry, and vectors with physical science applications. A modeling curriculum is used that requires students to develop models that describe the physics of the real world. The main emphasis of the course is classical mechanics (motion, force, energy), with shorter units on electricity, special relativity, modern physics, and current topics of interest. Students who have completed or are taking calculus concurrently may take an honors option that will allow them to prepare for the Advanced Placement exam in Mechanics.

**ENGINEERING & TECHNOLOGY (ROBOTICS )**
One semester, one half credit; offered both semesters. Capacity: 12 students.

This STEM (science, technology, engineering, and math) course teaches engineering principles through the LEGO Mindstorms and TETRIX robotics systems, which involve building various types of robots and programming them using students' tablet computers. Students design their own robots for different tasks,
using multiple sensors (light, sound, color, touch, radar). The “engineering design cycle” of goal, inputs, process, outputs, and feedback is used with each building and programming project. Students will use CAD (Autodesk), learn ROBOTC programming, and undertake other engineering projects.

**Fall semester section:** Dependent on scheduling, students may participate in a regional or national robotics competition. They will mentor Middle and Lower School students as they prepare to participate in the FIRST LEGO League competition.

**Spring semester section:** Students are expected to participate on the Optimus Prin robotics team in building a robot for a national competition (FRC, FTC, VEX, or BEST).

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**FIELD AND NATURAL HISTORY**

*Two semesters, one college credit (dual enrollment). Prerequisites: Completion of Biology and Chemistry; minimum cumulative GPA of 3.0; instructor approval. Upon completion of this course, students receive credit at both the Upper School and at Principia College.*

This college-level course studies local plants and animals in their natural environment and in relation to humankind. Emphasis is on conservation, nature interpretation, observation, and field research skills. Natural history is explored through field exercises as well as literature.

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**MARINE BIOLOGY**

*Two semesters, one credit. Prerequisites: Completion or concurrent enrollment in Biology and Chemistry, or permission of instructor.*

An introduction to the biology of marine plants and animals through films, reading, research, and laboratories. This course focuses on units dealing with the ocean as a habitat, animal/plant adaptations, the diversity of marine ecosystems, and current global challenges to marine life and habitats.

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**SUSTAINABILITY**

*Two semesters, one credit. Prerequisite: Completion or concurrent enrollment in Biology and Chemistry, or permission of instructor.*

This course builds on fundamental principles of ecology and introduces students to the goals, principles, and practical applications of sustainability. We examine major environmental issues and current trends in ecosystem functioning, energy use, resource management, climate change, water, pollution, population, and sustainable design. Through labs, projects, debates, discussions, and field trips to surrounding businesses, we investigate the principles of sustainability and their application to everyday life.
Among the goals of the Social Studies Department, it is paramount that students 
1) learn to become constructive members of a free society—understanding that society and having the skill to participate in it; 
2) develop a global outlook; and 
3) become proficient in special skills, such as note taking, analysis, defending a position, and writing. The sequence of social studies courses at the Upper School is designed to build one on another, from freshman to senior year, in support of these goals.

UNITED STATES HISTORY (REGULAR, HONORS)
Two semesters, one credit. Required of all students. Prerequisite: Western Civilization, or standing as new student.
This is a survey course covering U.S. history from before Columbus to modern times. From the Declaration of Independence through the Cold War, the United States goes from a fledgling nation to a superpower. We discuss and debate major issues to help students formulate their own views and discover how people and events reflect the context of their times. Included are videos, oral reports, class and online discussions, debates, and essay writing.

Students may apply for an honors section of this class, in which they can look forward to more challenging reading assignments (including primary source materials), discussions requiring a higher degree of critical analysis, and more in-depth thesis papers.

U.S. GOVERNMENT
One semester, one half credit. Offered both semesters. Required for graduation. Meets Missouri’s American government course requirement. Prerequisite: senior standing or completion of a full-year course in American history.
This survey course explores the institutions, branches, and functions of federal, state, and local governments, including electoral processes. It includes an emphasis on current governmental issues, as well as a study of the principles and provisions of the Missouri and United States Constitutions. Students will be provided with opportunities to engage with current governmental issues and U.S. politics.
CURRENT ISSUES
One semester, one half credit. Prerequisite: two years of high school social studies or approval of instructor.

This class examines topics that are ongoing in the world and in the United States, regardless of which political party is in power. Students keep abreast of national and international events through relevant articles from The Christian Science Monitor and other periodicals. Daily discussion allows students to understand the important events occurring in their world, as well as the thinking of the leaders charged with making crucial decisions affecting or affected by those events. Other activities may include research projects, essay writing, group work, the use of videos and DVDs, and the development of a better sense of world geography and how geography affects decision making.

ECONOMICS
One semester; one half credit. Offered both semesters. Grades 11 and 12.

Economics is the study of choice. Students will develop an economic way of thinking through classroom discussions, field trips, and business simulations. Both microeconomic and macroeconomic units are included. Students will also study the stock market and learn how to research a company through the use of annual reports, business publications, and the Internet. By forming investment clubs, managing stock portfolios, and breaking down the strategies of successful growth and value investors, students will gain practical experience in developing their own investment philosophy. A unit on basic accounting and financial skills based on the Cashflow game completes the course.

SENIOR SEMINAR
Two semesters, one credit. Maximum enrollment: 12. Prerequisite: Approval of instructors.

This course will examine a range of contemporary global topics, including the role of the media in society, character, leadership, courage, and the role of geography and religion in geopolitics. A variety of college-level reading will be required, including extensive use of The Christian Science Monitor. Students will be expected to carry the bulk of discussions and explorations and to engage in extensive outside-the-classroom research, writing, and defense of findings and opinions.
The department offers a variety of courses designed to expose students to, and involve them in, a number of creative activities where imagination, self-discipline, and individual expression are required. Note: one quarter of the required arts credits must be met through the Integrated Arts course.

**CREATIVE EXPRESSIONS IN NATURE**

Winter trip, only in years when trip is offered. No credit. Prerequisites: sophomore, junior, or senior standing; approval of faculty and administration.

This interdisciplinary course explores the relationship between natural science and art, and combines scientific observation of nature, journal writing, drawing, and photography. Students will conduct research using the scientific method. Observations will be recorded in student journals through note taking and sketching. Photography will be used as an additional method of documentation.

The course includes one week at the Teton Science School in Jackson Hole, Wyoming, or at The Link School in Buena Vista, Colorado. A fee is charged, based on current transportation rates and other costs.

**INTEGRATED ARTS**

One semester, one half credit. Grades 11 and 12. Required for graduation.

This survey course introduces students to Western art and music from a historical and stylistic standpoint by studying a variety of media. Learning about the arts from ancient Egypt through modern-day expressions will help students appreciate the culture around them. Students also develop an individual project on an artist of their choice, providing a basis for college-level study of the humanities.

**DANCE**

Principia’s dance courses help students develop the ability to communicate by incorporating dramatic, visual, and musical aspects of art, as well as the physical aspect of the whole man. Students learn to respect and work with their bodies and to understand that dance is the outcome of intelligent and purposeful physical actions taking form in thought first. As they improve their technical skills, they also expand creative and critical thinking skills through working together with other dancers to choreograph pieces for a dance performance at the end of each semester. Dancers are required to have appropriate dance attire, black jazz pants, and their own dance shoes.

**DANCE BASICS**

One semester, one half credit. Offered each semester and may be taken for either Visual and Performing Arts or Athletic credit.

For beginning to intermediate students, this course gives those who are interested in dance an opportunity to experience the different disciplines of ballet, tap, jazz, and modern dance, and to learn something of the history of dance. The course explores space, timing, rhythm, and musicality, and works to improve strength, balance, and flexibility. Students prepare at least one dance for performance.

**CONCERT DANCE**

One semester, one half credit. Offered each semester and may be taken for either Visual and Performing Arts or Athletic credit. Prerequisite: Dance Basics or previous dance experience and approval of instructor.

For intermediate to advanced students, this course covers a more advanced level of all that is done in Dance Basics, using more improvisation to generate movements. Students learn aspects of choreography and collaborate with the instructor in choreographing dances. They work together in small groups to refine technical and choreographic abilities through exploring a chosen piece of music, making decisions as to what discipline of dance fits best and then creating the steps that will work with the music. Students take part in each of the Upper School’s major performing arts shows. There is a dance show at the end of the fall semester, a smaller dance show in the spring, and a dance prepared for the three shows that involve all the performing arts disciplines—Family Weekend, Christmas Show, and the end-of-year Arts Encore.

**MEDIA COURSES**

Credit may be earned in Visual and Performing Arts or Applied Arts. For descriptions, see listings in the Applied Arts section.

**PHOTO 1**

Offered both semesters, one half credit. Grades 11 and 12.

**PHOTO 2**

Spring semester, one half credit. Grades 11 and 12. Prerequisite Photo 1.

**FILM STUDIES**

Spring semester, one half credit. Grades 11 and 12.

**VIDEO PRODUCTION**

Offered both semesters, one half credit. Grades 11 and 12. Fall semester covers advertising; spring semester covers sitcoms.
MUSIC

Principia’s music courses and activities promote an appreciation and love of music. Individual creative expression is blended with the opportunity to experience unselfishness, cooperation, sustained attention, self-discipline, and aesthetic values. Students are introduced to various types of music and, along with building their musical awareness, learn how to improve listening skills and technical proficiency. All courses offered only upon sufficient demand. They may be taken as independent study, subject to permission of the teacher and department head.

Eligibility for music participation

Along with nearly all public and private high schools in Missouri, Principia is a member of MSHSAA, the Missouri State High School Activities Association. MSHSAA rules govern eligibility for music (and sports) participation for high school students, and these rules limit eligibility when students transfer between schools, are dismissed from school, and/or do not meet their school’s academic or citizenship standards. If your child transfers to or from another school, please check with Principia and the other school before deciding on sports and music participation at the new school. Your decisions will impact eligibility at Principia, should your child be re-accepted in the future.

BEGINNING BAND—A

Fall semester, one half credit.

Students will learn the fundamentals of tone production, articulation, and fingering on a wind instrument of their choice (trumpet, trombone, tuba, baritone horn, French horn, saxophone, clarinet, or flute). In addition, students will learn to read and interpret music while gaining some knowledge of instrumental music genres. By the end of the course, students will be able to sight read and perform simple 5–8 melodies, duets, and trios.

BEGINNING BAND—B

Spring semester, one half credit. Prerequisite: Beginning Band—A.

This course is for students who wish to continue music study, with the aim of auditioning for the Upper School Symphonic Band at the end of the semester. This is an accelerated course for motivated students, in which they will complete the Year 1 and Year 2 Band Method Books. The homework (practice requirement) for this course is two hours weekly outside of class time.

SYMPHONIC AND JAZZ BANDS

Two semesters, one credit. Prerequisites: Students must have played in a school band for at least three years prior to joining or get the instructor’s approval.

If you have at least three years of experience on a band instrument and love to play, the Upper School Symphonic Band will provide a setting in which to hone your skills and progress to higher levels of performance. Students have the opportunity to perform with Symphonic Band, Pep Band, and small ensembles.

The Symphonic and Jazz Bands meet during the same class period. All band students participate in the Symphonic Band, and selected members participate in the Jazz Band. All training leads to a variety of performance opportunities and contests. Band members also have the opportunity (optional) to audition for District and State concert and jazz bands, and participate in District and State solo and ensemble contests.

MUSIC THEORY

Fall semester, one half credit. For credit in visual and performing arts or applied arts.

Basics of melody, rhythm, form, and harmony are studied in the context of musical examples and student exercises. Ear training and dictation exercises are introduced via classroom activities and theory software. Students learn to analyze and write hymns, transpose hymns for instruments, and use Sibelius notation software.

CONCERT CHOIR

Two semesters, one credit. Prerequisite: approval of instructor and a short audition and voice-classification appointment.

For students who love to sing, Concert Choir presents the opportunity to build skills in a large group of peers. No prior vocal experience is necessary, but participants must be able to match pitch, have a sense of tonal memory (be able to echo short melodic phrases by ear), and be dedicated to making music.

The choir sings a variety of folk, sacred, classical, gospel, and jazz music. Students learn music reading, solfège, and vocal production, and strengthen their ability to hold a part when singing harmony. Choir provides excellent training for participation in District and State festivals, community choirs, and the School’s annual musical production. Class size is limited to 60 students.
VISUAL AND PERFORMING ARTS

STUDIO ART

Courses in visual expression are offered in both 2D and 3D formats and are open to students from all grade levels (with the exception of Life Drawing). Training is given in basic visual skills of design, drawing, painting, pottery, etc. Problem solving, creativity, personal interpretation, and aesthetics are stressed in all courses.

DIGITAL DESIGN

One semester, one half credit. All grade levels. Some drawing experience is desirable.

This course is a hands-on introduction to the software programs Adobe and Corel. It is specifically structured around the goals of artistic discovery with emphasis on creating original digital art.

DRAWING

One semester, one half credit. All grade levels.

Drawing is a way of seeing, thinking, and planning relevant to all art disciplines. This course attempts to reduce the principles of drawing to their simplest common denominators—marks, lines, shapes, light, perspective, and proportion. Students are encouraged to explore a variety of drawing techniques with an emphasis on the development of confidence and facility in the medium. Design, composition, and personal expression are emphasized.

LIFE DRAWING AT ARTISTS’ GUILD

One semester, one half credit. Grades 11 and 12. Prerequisite: Students must present a portfolio to demonstrate dedication and maturity.

Students are accepted to work at the St. Louis Artists’ Guild three hours per week, drawing from life. Additional class time is used to prepare a college portfolio.

CRAFT MEDIA

One semester, one half credit. All grade levels.

This course introduces students to a variety of craft techniques, including papermaking, bookbinding, leatherworking, jewelry design, and copper enameling. Through an exploration of materials, students develop a command of the structural and visual qualities of handmade objects.
THEATRE ARTS

A vital part of the Principia experience, the theatre arts develop poise, improve speech, and foster creative growth. Enrolled students gain colorful experience in the fundamentals of acting and speech, and through self-expression, they develop new confidence and naturalness. Courses are offered only upon sufficient demand.

THEATRE ARTS
Two semesters, one credit. Grades 11 and 12.

This class serves as an introduction to the basics of theatre and performing. Students will develop their ability to perform and gain an understanding of other aspects of theatre such as writing, stage managing, costuming, set design, and running sound and light boards. The ability to effectively convey emotion and give life to a character will be the primary theme and involve numerous theatre games and exercises. Specific focus areas include facial expression, voice work, and awareness of body language, as students develop the skills and technique that every actor relies on and strives to master. Opportunities to perform will include a one-act play, monologues, duologues, a children’s play, and two all-School programs.

ADVANCED THEATRE ARTS
One semester, one half credit. Grade 12. Prerequisite: Approval of instructor.

Students will build on their experience in Theatre Arts in a more intensive environment. They will be introduced to the methods of Constantine Stanislavski, Sanford Meisner, Lee Strasberg, Uta Hagen, and Stella Adler. Students will also have the opportunity to attend several performances and acting workshops outside of the classroom, as well as have guest actors/teachers conduct in-class workshops. A broad range of material will be covered, and students will have the option of writing and performing an original piece.
Our World Language Department offers a selection of three modern languages, with classes ranging from beginner to Advanced Placement. While students develop facility in speaking, listening, reading, and writing at all levels, emphasis is also placed on an appreciation of peoples and their cultures, as well as a geographical knowledge of the areas studied.

To graduate from Principia Upper School, students must pass two years of the same world language and are advised to begin this study as early as possible, preferably freshman year. Beyond this requirement, they have the option to continue studying their language of choice through the Advanced Placement level (with instructor approval), to learn another language altogether, or to study two languages concurrently. Students showing interest and ability are urged to continue with three or more years of study. The department occasionally sponsors a trip abroad.

FRENCH 1
Two semesters, one credit.

This elementary course is for students without training or not prepared for intermediate work. It includes detailed work in pronunciation, basic vocabulary, and basic grammar. Reading accelerates during the year. Textbook work is integrated with online flashcards, oral, aural, and written formative and summative assessments.

FRENCH 2
Two semesters, one credit.

This intermediate-level course is for students who have successfully completed French 1 or who demonstrate sufficient foundational skills, grammar, and vocabulary. It includes continued work in pronunciation, intermediate vocabulary, and intermediate patterns of grammar and composition. Reading accelerates during the year. Textbook work is integrated with online flashcards and oral, aural, and written formative and summative assessments. Project-based learning units include development and practice of speaking, writing, reading, and listening skills through cultural enrichment.

FRENCH 3
Two semesters, one credit.

This advanced intermediate course is for students who have successfully completed French 2 or who demonstrate sufficient proficiency to enter this level. It includes continued work in pronunciation and in intermediate and advanced vocabulary patterns of grammar and composition. There is an increased emphasis on reading and writing. Textbook work is integrated with online flashcards and oral, aural, and written formative and summative assessments. Project-based learning units include development and practice of speaking, writing, reading, and listening skills through cultural enrichment.

FRENCH 4 AND 4 HONORS

While the advanced French language courses are being phased into the academic program, students will be able to complete coursework already started. Online options may be considered.

FRENCH 5: AP FRENCH LANGUAGE AND CULTURE
Two semesters, one credit.

The School will collaborate with qualified students to find the best option and assess eligibility for preparing for the AP exam.

MANDARIN CHINESE 1
Two semesters, one credit.

Elementary, for students either without training or not prepared for intermediate work. Includes detailed work in Pinyin pronunciation, basic vocabulary, character writing, and basic grammar patterns. Reading accelerates during the year.

MANDARIN CHINESE 2
Two semesters, one credit.

Advanced beginning Chinese, building on first-year skills, with continued emphasis on speaking and character writing as the basis for reading. Introduction of partial vocabulary and grammar structures intensifies.

MANDARIN CHINESE 3
Two semesters, one credit.

Intermediate Chinese, including review of past grammar and vocabulary. Emphasis is placed on broadening this language base with increased vocabulary learning, and improving fluency and accuracy in speaking, reading, listening, and writing.

MANDARIN CHINESE 4
Two semesters, one credit.

This intermediate course introduces approximately 350 new vocabulary terms. Students will increase fluency and accuracy in speaking, reading, listening, and writing on topics of interest such as campus life, career planning, and Chinese traditions.

EXPLORING CHINESE
One semester, one half credit.

Through story-based teaching, calligraphy, and cultural connections, students acquire the 100 highest-frequency words in Mandarin. This class is designed for students who want to travel to China, study Chinese in college or later in Upper School, or go into international business. (Note: This course does not count toward the world language graduation requirement.)
SPANISH 3
Two semesters, one credit.
A more linguistically integrated approach to four basic skills: reading, writing, speaking, and listening. A full review of grammar with emphasis on the finer points of grammar and verb use; more extensive and advanced vocabulary; introduction to Hispanic culture and literature, especially through short stories, film, creative writing, and oral presentations. Deeper cultural connections and comparisons. Emphasis on use of language in reading, writing, and discussion for a smoother transition to Spanish 4.

SPANISH 4
Two semesters, one credit.
This course is for the student who wants to be able to operate in a foreign culture. The conversations, projects, listening activities, writing, and reading will have an authentic element to prepare for functioning in the real world. The grammar lessons will be based on what is needed to accomplish the above.

Students who successfully complete Spanish 3 are encouraged to take this course, which is designed for students who wish to continue language study but are not intending to take an Advanced Placement course. However, with permission from the department, it is possible to take Spanish 5: Advanced Placement after successful completion of this course.

SPANISH 5: ADVANCED PLACEMENT [AP SPANISH LANGUAGE]
Two semesters, one credit.
This course continues the work of Spanish 4. Students are admitted based upon the quality of previous work or the recommendation of the fourth-year teacher. Upon completion of this year, students are usually candidates to take the Advanced Placement Exam in Spanish Language.

SPANISH 1
Two semesters, one credit.
Elementary, for students without training or not ready for intermediate work. Includes detailed work in pronunciation, basic vocabulary, grammar patterns. Reading accelerates during year.

SPANISH 2
Two semesters, one credit.
Intermediate course, developing listening and speaking skills, with increased emphasis on reading and writing. Introduction of practical vocabulary and structure intensifies. This course is also open to freshmen who successfully completed the equivalent of one year of high school Spanish while in middle school.
ATHLETICS

All Principia coaches are practicing Christian Scientists. This means students are constantly encouraged and supported in breaking limitations and joyously overcoming challenges through prayer.

Every student is required to participate in a sport eight times during their four years. Students may apply for an independent athletic credit, an option reserved for those who seek to demonstrate mastery in a discipline not offered at Principia. In support of the value of a diverse learning experience, students who have participated in a variety of athletics are given greater leeway when applying for an independent athletic credit.

INTERScholastic sports

For boys—football, cross country, soccer, basketball, wrestling, baseball, tennis, and track.

For girls—cross country, tennis, softball, volleyball, basketball, soccer, track, swimming, and diving.

Additional activities that meet the Athletic Requirements—dance and poms.

*Uniforms are provided, except for shoes, gloves, racquets, swimsuits, and shin guards.

INDEPENDENT sports

This option is for an athletic activity where the student has already demonstrated an above-average proficiency and is seeking mastery. If the independent sport is with a team outside of Principia, the student must provide written documentation (i.e. journal, testimony, etc.) about how Christian Science was used in the athletic experience. There is an application process to obtain approval and credit, and the student should work with an academic counselor to meet the minimum requirements.

ELIGIBILITY FOR SPORTS participation

Along with nearly all public and private high schools in Missouri, Principia is a member of MSHSAA, the Missouri State High School Activities Association. MSHSAA rules govern eligibility for sports (and music) participation for high school students, and these rules limit eligibility when students transfer between schools, are dismissed from school, and/or do not meet their own school’s academic or citizenship standards. If your child transfers to or from another school, it’s very important to check with Principia and the other school before deciding about sports and music participation at the new school. Your decisions will impact eligibility at Principia, should your child be re-accepted here in a future year.

ATHLETIC PHYSICAL EXAMS

The Missouri State High School Activities Association (MSH-SAA) requires that all athletes, boys and girls, have on file with their school the completed, four-page MSHSAA form, including the concussion section, prior to their participation in any practices or games.

POLICY FOR WITHDRAWALS FROM TEAMS

See section on Withdrawals from Courses and Athletic Teams, under Graduation Requirements.
The Principia School admits and enrolls qualified students of Christian Science without regard to race, color, or national or ethnic origin and affords these students an equal opportunity to experience a Principia education. In the administration of all its educational policies and financial aid, athletic, and other school-administered programs, Principia does not discriminate on the basis of gender, race, color, or national or ethnic origin but, rather, welcomes diversity and individuality.

**BASIC REQUIREMENTS**

Each applicant to Principia Upper School will be considered based on commitment to Christian Science and academic readiness. Every Upper School student lives either in a dormitory or with parents as a day student. A diploma is granted only after the successful completion of the senior year at the Upper School.

**RELEIGIOUS REQUIREMENTS**

Principia seeks to serve the cause of Christian Science by providing an environment that encourages students to apply the teachings of Christian Science in their daily lives. It is open to young people who are regularly attending Sunday School and who have at least one parent who is a branch church member. Both parents must be willing to let the applicant trust Christian Science treatment in the event of physical and non-physical needs. Applicants must submit two Christian Science references.

**SCHOLASTIC REQUIREMENTS**

Acceptance to the Upper School is based on individual merit. Principia is prepared to enroll and continue to work with those students who can function in a college preparatory curriculum.

“The Principia refuses to accept as final any belief of limitation which grants greater capacity to one individual than to another” (Principia Policy 3); therefore, the school does not engage in psychologically-based strategies to deal with “learning disabilities.” Students who are struggling academically are enrolled in a special reading class, invited to attend after-school conferences, or, if necessary, may be tutored privately at the parents’ expense. Underlying all these efforts is the understanding that “man as the child of God reflects the intelligence and strength of his Maker” (Principia Policy 3).

All applicants must submit three academic references, an official transcript (including a two-year history), and all available standardized test results. If further information is needed, the Admissions Office will contact the family.

**HOW TO ACCESS THE APPLICATION**

To access an application for admission, go to www.principiaschool.org/apply.

**BEST TIME TO APPLY**

The Admissions Committee begins making decisions in late fall for the following school year. While we accept applications throughout the summer, we strongly encourage students to apply by June 1.

**TRANSFERS**

When a student enters after the school year has begun, credit will be given for course work that matches those courses offered by Principia in which the student actually enrolls. Withdrawal grades awarded by the school from which the student transfers will not be averaged as a part of the student’s semester or year-end grades.

**APPLYING AS A SENIOR**

A student may apply for their senior year. A full year’s residency and a full course load are required to qualify for a diploma.

**FOR FURTHER INFORMATION**

Call, write, or e-mail:

**The Admissions Office**
Principia School
13201 Clayton Road
St. Louis, MO 63131-1002

Toll-Free: 800.218.7746, ext. 3610
Local: 314.434.2100, ext. 3610

E-mail: enroll@principia.edu
Web: www.principiaschool.org/admissions

**VISITING WEEKENDS**

If you know someone who would like to visit Principia Upper School, check our website for visiting weekend dates: www.principiaschool.org/visit.
PAYMENT DEFAULTS/DEFICIENCIES

Keeping financial obligations current is of such importance at Principia that its founder, Mary Kimball Morgan, included the following as one of the 23 fundamental policies of The Principia:

Policy 20
“The Principia shall conduct its activities on the basis that all obligations of whatever nature incurred by or due to The Principia shall be met promptly and fully.

“The practices of the business department shall not be controlled by sentiment and shall be based upon the inspiration of the Golden Rule. This policy shall not only govern the business dealings of the institution and its members in contractual or financial matters, but shall be reflected also in the demand that all obligations resting upon members of the administration, faculty, staff, and student body as members of this educational community shall be met squarely and promptly.”
—Education at The Principia, p. 235

INSUFFICIENT FUNDS AND DECLINED PAYMENTS

There will be a service charge for each returned or declined payment.

LATE FEE

A 1% service charge on delinquent amounts will be billed monthly.

PAST-DUE ACCOUNTS

Failure to pay charges when due classifies accounts as past due. Transcripts and diplomas are held, and students may not attend classes or participate in sports camps or activities until accounts are current. Continued delinquency may result in financial suspension and collection activities including, but not limited to, reporting the account to a credit reporting agency and referring it to a collection agency for collection of all balances, service charges, late fees, collection costs, and attorney’s fees.

GRADES, TRANSCRIPTS, AND DIPLOMAS

Grades and transcripts are furnished on request, provided that all financial obligations to Principia have been met. Diplomas and grades are issued to Upper School graduates when their accounts are paid in full.
FINANCIAL AID

Principia has a financial aid program for families who need assistance in meeting the costs of tuition, room, and board. The Financial Aid Committee meets those needs, to the greatest extent possible, primarily through needs-based grants.

Funding for the financial aid program comes from contributions made by generous friends of the School and from income earned from the School’s endowed funds. Most of these funds have been provided by donors who wish to support the education of young Christian Scientists.

Aid is awarded on the basis of need and must be applied for annually. If a student receiving aid withdraws during a semester, the aid is prorated on the basis of tuition, room, and board charges as determined by Billing Services. For information about current financial aid policies and the application process, please refer to the website: www.principiaschool.org/finaid.

SCHOLARSHIPS AND AWARDS

Students may apply for the Arthur F. Schulz Jr. Scholarship or the Whole Man Leadership Award. For information on eligibility and application forms, please refer to the website: www.principiaschool.org/scholarships.

STUDENT EMPLOYMENT

Students interested in employment should know that only rarely are earnings sufficient to cover personal expenses. In general, parents are responsible for providing for their boarding student’s cash needs and spending money. (Principia provides an ATM machine for cash withdrawals.)

Jobs available include those in the bookstore, dining services, athletic departments, library, and child care. Earnings depend on work schedules and hours available. Students may continue with their jobs as long as they give satisfactory service and maintain satisfactory grades. Details are available from the dean of students.
<table>
<thead>
<tr>
<th>Name</th>
<th>Department/Specialization</th>
<th>Degree(s)</th>
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</thead>
<tbody>
<tr>
<td>Steven Henn</td>
<td>Department Chair, English</td>
<td>B.A., Principia College</td>
</tr>
<tr>
<td>Sheila Hobson</td>
<td>Mathematics</td>
<td>B.S., Southern Illinois University–Edwardsville</td>
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<tr>
<td></td>
<td></td>
<td>M.A., University of Missouri–St. Louis</td>
</tr>
<tr>
<td>David Humphrey</td>
<td>Philanthropy</td>
<td>B.A.A., Fontbonne College</td>
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<tr>
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<td>M.A., Maryville University</td>
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<tr>
<td>Veronica S. B. Kline</td>
<td>French, Bible Seminar</td>
<td>B.A., Principia College</td>
</tr>
<tr>
<td>Michael Laggart</td>
<td>Social Studies</td>
<td>B.A., Principia College</td>
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<tr>
<td></td>
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<td>M.A., Lindenwood University</td>
</tr>
<tr>
<td>Dana LePoidevin</td>
<td>Applied Arts; Media, Photography, Yearbook</td>
<td>B.A., Principia College</td>
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<tr>
<td></td>
<td></td>
<td>M.A., Webster University</td>
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<tr>
<td>Katie MacDonald</td>
<td>English</td>
<td>B.A., Principia College</td>
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<tr>
<td></td>
<td></td>
<td>M.A.T., Boston University</td>
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<tr>
<td>Skip Mange</td>
<td>Physics</td>
<td>B.S., Washington University in St. Louis</td>
</tr>
<tr>
<td>William H. Marston</td>
<td>Department Chair, Mathematics</td>
<td>B.A., Principia College</td>
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<tr>
<td></td>
<td></td>
<td>M.A.T., Webster University</td>
</tr>
<tr>
<td>Nancy K. Heimerk</td>
<td>Department Chair, World Languages; English</td>
<td>B.A., California State University, Los Angeles</td>
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<tr>
<td>Christian Hagenlocher</td>
<td>Biology</td>
<td>B.S., Principia College</td>
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<td></td>
<td>M.A., Colorado State University</td>
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<tr>
<td>Kathy Foy</td>
<td>Physics</td>
<td>B.A., Principia College</td>
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<tr>
<td>Michael D. Griswold</td>
<td>Music</td>
<td>B.M.E., University of Northern Colorado</td>
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<td>M.S., Colorado State University</td>
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<tr>
<td>Lynne Scott</td>
<td>Field/Natural History, Sustainability, Online Biology</td>
<td>B.S., Principia College</td>
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<td>M.S., University of Illinois</td>
</tr>
<tr>
<td>Melanie Shedd</td>
<td>Department Chair, Science; Chemistry</td>
<td>B.A. and B.S., Principia College</td>
</tr>
<tr>
<td>Martha Betton Stitzel</td>
<td>Department Chair, Visual, Applied, and Performing Arts; Music</td>
<td>B.S., Kansas State University</td>
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<tr>
<td></td>
<td></td>
<td>M.M.Ed., VanderCook College of Music</td>
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</table>

**FACULTY**

Date in parentheses indicates first year of service at Upper School.

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<tr>
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<tbody>
<tr>
<td>Sheila Alioto</td>
<td>Dance</td>
<td>B.F.A., Kansas City Art Institute</td>
</tr>
<tr>
<td>Holly Barber</td>
<td>Choir</td>
<td>B.A., Principia College</td>
</tr>
<tr>
<td>Judith Barker</td>
<td>Learning Resource Center; Library Media Specialist</td>
<td>B.S., M.Ed., West Texas A&amp;M University</td>
</tr>
<tr>
<td>Howard Bay</td>
<td>Department Chair, Social Studies</td>
<td>B.A., Principia College</td>
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<td></td>
<td></td>
<td>M.A., University of Missouri–St. Louis</td>
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<tr>
<td>Courtney Bradley</td>
<td>Spanish</td>
<td>B.A., Gettysburg College</td>
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<tr>
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<td>M.A., University of Delaware</td>
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<tr>
<td>Kathryn Calkins Keyes</td>
<td>Mandarin Chinese</td>
<td>B.A., Dartmouth College</td>
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<tr>
<td>Sharon Carper</td>
<td>Senior Seminar</td>
<td>B.A., Principia College</td>
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<td></td>
<td>M.Ed., University of Missouri</td>
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<tr>
<td>Patrick Cummins</td>
<td>English</td>
<td>B.A., Tulane University</td>
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<td></td>
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<td>M.A., University of Missouri–Kansas City</td>
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<tr>
<td>Jerri L. Davenport</td>
<td>English, Reading</td>
<td>B.A., University of Maryland</td>
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<tr>
<td>Sara Phillips de Borja</td>
<td>Integrated Arts</td>
<td>B.A., Principia College</td>
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<td>M.A., Washington University</td>
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<tr>
<td>Liesl Ehmke</td>
<td>Visual and Performing Arts</td>
<td>B.A., Principia College</td>
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<tr>
<td>Richard Eisenauer</td>
<td>Social Studies</td>
<td>B.A., Principia College</td>
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<tr>
<td>Jim Evans</td>
<td>Senior Seminar</td>
<td>B.A., Principia College</td>
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<td>M.A., Northern Illinois University</td>
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<tr>
<td>Lynne Evans</td>
<td>French</td>
<td>B.A., McGill University, Canada</td>
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<td>M.A., Webster University</td>
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<tr>
<td>Jodi Fielding</td>
<td>English</td>
<td>B.S., Principia College</td>
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<td>B.S., Principia College</td>
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<tr>
<td>Caitlin Heimerl</td>
<td>Art</td>
<td>B.F.A., Rhode Island School of Design</td>
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<tr>
<td>Nancy K. Heimerk</td>
<td>Department Chair, World Languages; English</td>
<td>B.A., California State University, Los Angeles</td>
</tr>
</tbody>
</table>

**STAFF, AND TRUSTEES**
HOME DEPARTMENT

BOYS’ HOUSEPARENTS

Clark Shutt: Residential Head (2008)
  B.A., Principia College
Steve Clough (1985)
  B.A., Principia College
Ben Glass (2010)
  B.A., Principia College
Paul Perea (2012)
  B.S., Northeastern University
Bruce Preston (2014)
  B.A., University of Wisconsin—Madison
Nathan Sablan (2014)
  B.S., University of Phoenix

GIRLS’ HOUSEPARENTS

Bonnie Mansfield: Residential Head (2005)
  B.S., Florida State University
  B.S., University of Phoenix
Louise Kingsbery (2014)
  B.A., Oklahoma State University
  M.A., City University of Seattle
Jane Record (2009)
  B.A., Principia College
Monica Semnacher (2011)
  B.A., Principia College
Karen Whitney (2007)
  B.A., Principia College

CHRISTIAN SCIENCE NURSING DEPARTMENT

Spring Shutt: Director of Nursing (2011)
  Graduate, Christian Sciences Nurses Training, Arden Wood Benevolent Association, San Francisco, California
Amanda DeNicholas (2009)
  Graduate, Christian Science Nurses Training, High Ridge House, New York, New York
Amy Harrison Fugman (2012)
  Graduate, Christian Science Nurses Training, Tenacre School of Christian Science Nursing, Princeton, New Jersey

STAFF

ADMINISTRATION

  B.A., Principia College
  M.S., Simmons College; M.B.A., Babson College
  Ph.D., Claremont Graduate University
Travis Brantingham: Principal (2006)
  B.A., Principia College
  M.A., Maryville University
Peter Dry: Assistant Principal (2014)
  B.A., University of Natal, South Africa
  M.A., University of Southern Queensland, Australia
Lee Fletcher-McGookin: Dean of Students (1995)
  B.S., California State University, San Jose
Jane Reider: Director of Teaching and Learning (2010)
  B.S., Eastern Illinois University
  M.A., Washington University
Brad Warrick: Director of Experiential Education (2005)
  B.A., Principia College
  M.A., Northern Arizona University
Shad Nichols: Athletics Director (2009)
  B.A., Principia College
  M.S., Eastern Washington University

ADMISSIONS AND FINANCIAL AID

Margery J. Savoye: Director of Admissions (1998)
  B.A., Principia College
Tami Gavaletz: Director of Financial Aid (2013)
  B.A., Principia College
  M.A., Webster University

ACADEMIC AND COLLEGE COUNSELING

Craig Fredrickson: Director of Academic and College Counseling (1985)
  B.A., Principia College; M.Ed., Maryville University certificate in college counseling, University of California, Los Angeles
  B.A., Principia College; certificate in college counseling, University of California, Los Angeles
Katherine Lewis: Registrar (2009)
  B.A., Principia College
FACULTY, STAFF, AND TRUSTEES

STUDENT ACTIVITIES

Connie Dennett: Student Events Coordinator (2005)
B.S., California State University, Fresno
M.S., California State University, San Francisco

David Humphrey: Student Activities Director (1989)
B.B.A., M.A Fontbonne College

BOARD OF TRUSTEES

David J. Anable
Gorham, Maine

William J. Flatley
Rockport, Maine

Hans E. Fredrikson
St. Louis, Missouri

John D. Friborg
Acton, Massachusetts

Janna Lowe Hernholm
San Diego, California

Jayme Walker Holcomb
Woodbridge, Virginia

Charles W. Lindahl
Fullerton, California

Robert J. Macdonald
Menlo Park, California

Meridee K. Olsen
Wilton, Connecticut

Catherine A. Raffles, Chair
Lake Forest, Illinois

Julie Rhodes Sanderude
Ridgefield, Connecticut

Robert B. Schwentker
Raleigh, North Carolina

SERVICES

Cheryl Craft: Director of School Store (1993)
St. Louis Community College

Peter Gladden: Director of School Technology (2008)
B.A., Principia College

B.A., Principia College

Dwight Oyer: Auditorium Manager (2001)
M.B.E., University of Northern Colorado
“Accuracy in thinking is the vital lesson to be learned in Principia, not only in the classroom but on the campus and in the home life.”

— Mary Kimball Morgan, Founder of The Principia