A. Curriculum

Sierra Preparatory Academy will offer a traditional liberal arts education model in a small school setting fewer than 250 students), with small classes (fewer than 22), a campus student/teacher ratio of no more than 15 to 1, and an advanced, rigorous core curriculum.

Sierra Preparatory Academy requires a common and rigorous sequence of courses for all students; there are no electives (except some choice in foreign language study). Students who complete the Sierra Prep program will be fully prepared for admission into top tier colleges and universities or any education and career path they choose.

The seven-year sequence in math, science, foreign language, fine arts, and the humanities exceeds the state standards in duration and content. All students will graduate as critical thinkers, coherent writers, and confident speakers. High expectations for student conduct are co-equal with the school's academic standards. Students profess an honor code that calls upon them to practice and defend academic integrity. Schoolwork is viewed as an objective good, but grades, ranking and competition between students are de-emphasized.

Sierra Preparatory Academy‘s core curriculum is planned and designed for all students at all grade levels with a variety of educational needs. The curriculum in all of its parts meets the rigor of the Arizona’s Common Core Standards for college prep and career readiness. Curriculum maps will be prepared to align the curriculum to the Arizona State Standards. Faculty will prepare lesson plans that will integrate the standards and will submit them weekly to the Headmaster and alignment coordinator (a function performed by a faculty member). Additionally, It is important to note that the school’s entire curriculum will be vertically (between grades) and horizontally (between core subjects) cross-aligned – what Sierra Prep students learn in one class is often purposely utilized in another. No class is designed and/or implemented in isolation. Once a month this cross-alignment will be reviewed by the master teachers, Headmaster and alignment coordinator. All curriculum maps will be reviewed at the end of each trimester with the entire faculty and staff, followed by an annual review with recommendations for improvements in the curriculum, adoption of best practices and allocation of resources for curriculum and professional development.

Our goal is to provide an environment that allows every student who wants to learn, the opportunity to achieve academically. Appropriate accommodations will be made for Special Education and ELL students when and where needed. Remediation will be provided for students who enter the academy below grade level based on school generated assessments as well as to students who have not reached mastery level of performance targets based on school generated assessments and evaluations

Middle School Humanities: The Middle School Humanities curriculum trains students to develop their skills in the four essential modes of communication – reading, writing, listening and speaking. Additionally, and as importantly, students use their study of history and literature to develop skills of comprehension and analysis. As preparation for Humane Letters courses in the high school years, Middle School Humanities classes give students the chance to vigorously inquire into works of literature and history. Classroom discussions encourage careful reference to the words of the writer, as students and teacher comment critically on those words, as well as the words of others in the class. Each member of the class should strive to express ideas with clarity and precision, and look for the same in others. The study and discussion of the written word in some of its most powerful expressions will improve the level at which each student speaks and writes.

- In the **Literature and Composition** classes, students read great works of literature and discuss them in Socratically-led classes. The literary selections allow for exploration of great themes such as heroism, honor, justice, and friendship. Selections span the centuries, from *Tales of Greek Heroes* to

contemporary masterpieces such as *To Kill a Mockingbird*. Students in the middle school English classes build their writing skills through a series of activities beginning with elements of grammar and moving toward the five paragraph essay. The 6th grade curriculum focuses primarily on vocabulary, sentences and individual paragraphs, but by the end of 8th grade, students will have begun to write five-paragraph essays based on analysis of the literary works read during the year. All students will take bi-annual assessments in grammar and writing to gauge progress, and 8th grade students must also pass a timed writing test to demonstrate that they are ready for the rigors of the Humane Letters curriculum beginning in 9th grade.

- The Middle School **History** curriculum encompasses, in three years' time, world history from Pre-history through the Renaissance, and American history from pre-revolutionary to the present day. For students to understand and appreciate the world they inhabit, a sense of this historical heritage is crucial. The 6th grade Ancient History and Medieval History curricula explore the civilizations that have most directly shaped the intellectual and cultural milieu of the Western world. The 8th grade American History course, builds upon the introduction to early American history in the 7th grade, and deals most immediately with the concepts and events that have shaped and continue to shape the world as it is today.

Humane Letters: Sierra Prep's Humane Letters curriculum is a high school program in which students are trained in the habits of rational thought about the humanities—history, literature, and philosophy – by engaging in three fundamental activities: reading, speaking, and writing. Although students read primary texts central to the Western tradition, the subject matter of the course is not simply the books on the reading lists, but rather thinking itself. In short, the purpose of Humane Letters is to train students in how to think clearly and critically.

The work of Humane Letters begins with critical, active reading of primary, rather than secondary history, literature, and philosophy texts from the best of what the Western tradition has to offer. The analytical approach taken to these primary texts is primarily a "new critical" approach: the primary text as a self-enclosed document speaks for itself. Secondary source material, whether of a historical, biographical, or literary nature, is extremely limited in order to promote the students' approaching the text without preconceptions and in order to avoid undermining the main focus of Humane Letters: discussing the primary text at hand.

Students in the 11th grade will have a full trimester of in-depth civics studies encompassing local, state, and national ideas of citizenship that will reinforce and enhance the civics curriculum that is integral to Humane Letters. A two trimester-long economics course will serve as one of many ways to bridge the humanities and mathematics curricula through the study of conceptual and mathematical macro and micro economics.

The Humane Letters sequence will culminate with the Contemporary Issues/Senior Thesis, which is meant to be a true "capstone" course at Sierra Prep Academy, combining the best and most advanced elements from the previous three years (9th, 10, and 11th grade) - blending all of the student's skills for close textual reading, analytical writing, and seminar discussion and exposing in depth students to modern/contemporary curriculum and texts. The Senior Thesis is created through a collaborative effort among members of the community of learners. The Senior works closely with an Advisor throughout the year. The Senior is then joined by other members of the community – including peers, parents, teachers – in an open discussion concerning the Thesis.

Writing: Sierra Prep Academy will treat Writing as a separate subject of the core curriculum at the high school grades and not as an adjunct skill as part of the Humane Letters curriculum. The Writing course will be fully integrated as part of a 'Writing Across the Curriculum' approach." Students in Grade 9 will examine the rhetorical purpose in writing and the fundamental models of analysis including 'examples,'

'comparison,' 'ways in which,' 'causes of,' 'effects of,' 'steps of,' and 'parts of' methods of development. Students in Grade 10 will continue to master the five-paragraph essay format and will write at least two research based papers that employ both synthesis and evaluation. Students in grade 11 will engage in poetry writing in conjunction with the literary study of poetry. Students will study poetry and creative writing as part of an examination of rhetoric. Additionally, students will explore the creative processes of short story and dramatic writing through analysis of great works and guided practice for producing their own works. Students will emerge from the year of creative writing with an expanded perspective, wrought through the repeated attempt to think through images and to find symbols that express significant truths and an expanded proficiency with the elements of language.

Mathematics: Sierra Prep's mathematics curriculum is a seven-year program that employs the mission to Socratically lead students to discover mathematical truth and beauty from arithmetic through calculus by helping them to: 1. Develop fluency in the language of mathematics; 2. Acquire analytic reasoning and logic skills; 3. Apply abstract concepts in concrete situations; 4. Translate problem situations into mathematical models; 5. Organize and effectively communicate mathematical questions and results

Beginning in middle school, for which the Connected Math program will be used, students begin to address mathematical concepts by using numerical analysis, first mastering the operations of addition, subtraction, multiplication, and division using whole numbers, fractions, decimals and percents before moving toward symbolic language and beginning to understand math as more than just rote memorization of algorithms. In the later middle school grades, students expand their mathematical models to the coordinate plane and begin to understand functions. In addition to linear and quadratic functions, students study exponential, logarithmic, polynomial, rational, and radical functions. Students begin to use the graphing calculator as a tool to solve real world problems graphically and algebraically. Discrete mathematic topics of probability, statistics, sequences and series are studied. The middle school studies end with proof by induction.

In the High School honors curriculum, students build an axiomatic system of definitions, postulates and theorems in order to write well developed proofs of geometric ideas. Students continue their advanced study of functions, with a new emphasis on trigonometric functions, conic sections and analytic geometry. Finally, students examine limits, derivatives, and integrals in a full two year exploration of Calculus.

Sciences: Sierra Prep's Science program is a seven-year curriculum which draws the students into an intense observation and exploration of the physical and natural world. We will take a "Physics First" approach, a common sense sequencing that has extensive research supporting its effectiveness, and will primarily use the Modeling Method of instruction as developed by Professor David Hestenes at ASU in partnership with the National Science Foundation. The curriculum emphasizes Socratic questioning, guided research, and student interpretation (versus simple recall of memorized facts). Labs in all the courses solidify a true and long-lasting comprehension of the phenomena studied, and improve the students' own powers of discernment and analysis. Students will be challenged to see the thematic connections that exist between all of the science disciplines (e.g. forms/changes of energy, properties of matter, cycles, organization in systems), and genuinely perceive the value of a multi-faceted approach to observing and describing the world.

Classical Languages: Sierra Prep's classical languages curriculum is a four-year program in which Latin I, II, and III in the 6th through 8th grades and Latin IV and Greek classes in grade 9 are mandatory. It is the mission of the Classics Department to generate enthusiasm for and promote the scholastic benefits of learning the languages and literature of the Ancient Romans and Greeks which have had such a profound impact upon the English language and Western culture. There are many reasons that Latin classes are mandatory for our junior high students: learning an inflected language provides the opportunity for increased skill in memorization and attention to detail; it approaches grammar from another perspective-

one which usually helps cement the comprehension and correct usage of English grammar; it enriches their vocabulary and understanding of derivations; it gives additional exposure to Classical culture, ancient history, and influential literature which will serve them well in other classes, especially Humane Letters. All Classics students take the annual National Latin Exam, and have the opportunity to participate in a number of other classical-focused National tests/contests/events.

Modern Languages: Sierra Prep's Modern Languages curriculum is a comprehensive and accelerated three year program in which students build competency with the grammar and vocabulary of a modern language in order to be able to read, analyze, and discuss great works of literature written by and for native speakers of that language. Literature allows the students to experience the language in its finest and most beautiful presentation, as well as offers an invaluable window into the cultures and histories of other peoples. To accomplish this, all classes will be conducted entirely in the target language, and frequent participation will be required of all students, enabling them to build the communication skills needed to interact with authentic literary texts in the given modern language. In the first two years, students learn the essential grammar of the language and work on building vocabulary and communication skills. In the third year of the language, the courses are conducted almost entirely in seminar style, based on reading, discussing, analyzing, and writing about authentic literary texts in the target language. Texts include short stories, poems, novels, and plays. At this level, students write five-paragraph essays about the literature that they read; essays are from two to four pages in length. Some grammar review and expansion is carried out in the third year as needed to refine the students' understanding of the more complex or challenging topics of each modern language. The vocabulary studied in these courses stems from the literary works read.

Fine Arts: The seven-year fine arts curriculum presents the language of the beautiful as manifested in the principle aesthetic media of the Western Tradition: the visual arts, music, poetry, and drama. The overall goals of the curriculum are to give students a detailed language by which to express the order and logic of these four classical media, and allow students to experiment with the ineffable beyond the rational: the epiphanies made possible by symbolic thought. The emphasis in all of the grades is upon the process of creating beauty. The fine arts are viewed as an essential human experience, key part of the liberal arts, rather than as an exclusive realm for fine arts professionals and specialists.

The preparatory art courses in the middle school introduce students to the foundational elements of art (including line, shape, form, value, texture, and color), as well as the principles of composition (unity, emphasis, variety, balance, movement, contrast, and repetition). Portrait drawings, one and two-point perspective, and outdoor landscape drawing and painting are emphasized. In the high school courses, students will review and strengthen their skills from the middle school, coming into a fuller awareness of the elements mentioned above in order to achieve cohesive, dynamic, and meaningful pieces. Students grow in their artistic endeavors by means of class instruction, group critiques/discussions, one-on-one direction, and the personal exploration and development of critical thinking skills. Painting and drawing (portraiture, still life, and landscape traditions) are still a focus, as students become more skilled in rendering three-dimensional images on a two-dimensional surface, and various sculptural media are also introduced. An appreciation for art masterworks is cultivated throughout the entire art curriculum, as students explore, discuss, and copy master artists' works from different historic and aesthetic periods in Western art history.

Physical Education: Students will have Physical Education classes as part of the regular curriculum in the middle school grades. Physical education activities at the high school level will become part of the extracurricular program (before and after school) at Sierra Preparatory Academy and will include Fitness Training and Yoga classes as well as a number of competitive sports (Basketball, Volleyball, Soccer, Track and Field, and Cross Country). It will be Sierra Preparatory Academy's policy is to maintain a healthy balance between academic and extracurricular sports.

Sierra Preparatory Academy's curriculum will use primary source materials and will not focus on textbooks. However, textbooks will be available as reference resources. Whenever possible, students will purchase their own copies of books rather than keeping large numbers of school texts on hand. The following reference resources will be used:

- 7th and 8th grade American History – *The History of US* series
- Middle School writing – Warriner's grammar and writing series
- High School writing – *Little, Brown Handbook*, *The Elements of Style*
- 9th grade Humane Letters – *The World of Late Antiquity* by Peter Brown; *Egypt, Greece, and Rome* by Charles Freeman
- 10th grade Humane Letters – *The Western Heritage* by Kagan, et al.
- 11th grade Humane Letters – *America* by Tindall and Shi, *After the Fact* by Davidson and Lytle
- Middle School Math will use the Connected Math Series
- High School Math will use the Holt, Rinehart and Winston Series, as well as James Stewart's *Calculus*.
- High School Physics and Chemistry will use the Modeling Method which does not employ a specific textbook (see the ASU website for extensive information about Modeling). Labs for the Chemistry class will be derived primarily from Addison-Wesley Small-scale lab book, and the Flinn Scientific Foundation publications. Classes will be supplemented with Prentice Hall textbooks from the advanced/AP series.
- Biology will use the Miller, Levine text by Prentice Hall.

B. Methods of instruction including formative assessment strategies

Sierra Preparatory Academy has selected an instructional program which best delivers the content of its curriculum to its students and is closely aligned to its educational philosophy. Sierra Preparatory Academy's instructional program has six main areas of emphasis:

1. Small Classes

Sierra Preparatory Academy projects a class size of no more than 22 students, which will provide ample opportunity for in-class interaction with the teacher. There will be a specific classroom for each subject and students will move from classroom to classroom during the school day.

Smaller classes have been proven by plenty of research and evidence of their effectiveness in positively impacting and improving the academic achievement of students. A meta-analysis on the relationship of class size and achievement (Glass & Smith, 1978)[1] points to the correlation between small class sizes and academic achievement. A primary conclusion drawn from this research is that reduced class size can be expected to produce increased academic achievement. The effectiveness of small classes is also reported in another study "The Long Effects of Small Classes in the Early Grades: Lasting Benefits in Mathematics Achievement at Grade 9" (Hedges, 2001)[2], which again illustrates that small classes are effective because they provide opportunities for more individualized instruction. The study shows that with small classes, teachers can identify and remedy incipient problems among students at risk for low achievement.

2. Core Curriculum: Common, Coherent, and Integrated

Common, coherent and integrated core curriculum for all students, including fine arts, music and foreign language, will give students the opportunity to explore these areas as they relate to the core academic

[1] Glass, G.V., and Smith, M.L. (1978) Meta-analysis of research on the relationship of class size and achievement. San Francisco: Far West Laboratory of Educational Research and Development.

[2] Nye, B., Hedges, L. V., & Konstantopoulos, S. (2001). The long-term effects of small classes in early grades: Lasting benefits in mathematics achievement at grade 9. Journal of Experimental Education, 69, 245-257. Article retrieved on 10/17/2011 from http://southalabama.edu.

subjects. The common curriculum allows all children to develop the skills needed to speak the languages of human conversation: the spoken and read language, but also the language of mathematics, of science, of music and drama and art. A common curriculum assures that all students spend their time on what is essential. An integrated curriculum ensures that each element of the curriculum is purposefully related to the learning environment and to the rest of the curriculum. With a coherent curriculum, each course builds on those that precede it. This makes the curriculum rigorous, relevant, and engaging curriculum, and increases the opportunities for students to excel in that type of curriculum environment. Such Core Curricula are standard across top performing schools like Tempe Preparatory Academy and the Great Hearts Academy network in Arizona, ensuring that the approach is tested, comprehensive, and reliable.

3. Socratic Seminar Method

The courses at the Academy will be taught employing the Socratic Method, which develops critical thinking, speaking, reading and writing skills. It is incorporated within the curriculum as a method to increase student involvement. With the Socratic Method, students are actively involved in discovering truths through reading of original pieces of literature, rather than being informed through lectures in class or readings in textbooks. For the Socratic Seminar to be effective as an instructional methodology, basic ordered knowledge is necessary. The teacher's responsibility is to create the right questions for discussion. Students find the answers within their reading and reflective activities. Within the Socratic Method, students improve their writing skills through writing assignments on the text, either as a preliminary or a follow-up exercise to the discussion itself.

The Socratic seminar is based on the theory that it is more important that students learn to think critically than it is to present them with correct answers.

- Socratic seminars sharpen critical thinking skills as students analyze text, synthesize ideas suggested, and employ inferential reasoning;
- Speaking and writing skills improve;
- Students become excited about discussing meaningful ideas;
- Seminars stimulate the thoughtful exchange of ideas as participants learn to suspend bias and prejudice, and to ask meaningful questions instead.

Evidence, both qualitative and anecdotal, attests to the effectiveness of Socratic seminars in actively engaging students in learning and fostering higher-order thinking and social skills; Research also shows that through instruction, teachers can help students improve their reading comprehension. Teachers do this by modeling, demonstrating, and explaining thought processes and strategies to assist in comprehension (National Reading Panel, 2000); Socratic Seminars are beneficial in the classroom, to the whole school environment, and as a means to develop caring and critically thinking citizens – all part of the 21st century skills. The metacognitive nature of the Socratic Method encourages all students to think about how to reason and how to connect their experiences to their learning. Sierra Prep Academy believes this to be the one of most effective methods of teaching, since through this approach the students are primarily responsible for their own learning. Such responsibility serves to both increase student interest in the topics studied and promote long-term retention of the material covered.

Particularly in the first two grades (6th & 7th), the Socratic method will be supplemented by many aspects of direct instruction, which will be gradually phased out in the high school grades. Research has demonstrated the usefulness of this approach in general. It particularly fits the model for Sierra Preparatory Academy insofar as it: allows all students to have the same level of access to the core curriculum; builds community among students as they work alongside each other and meet common expectations within a directed academic program; provides essential guidance to students in order to adapt to a rigorous academic structure; helps to set a common conceptual framework among students, in preparation for more interactive instructional models in later years (especially seminar-style courses and

an increasing emphasis on Socratically-led instruction, which are core concepts in the Great Books model of education).

4. Great Books

Although some lecture and textbook reading may be incorporated as part of some courses, the main focus of all classes is the Great Books program, where the focus is on shared inquiry and active learning of the Great Ideas as expressed in the Western canon. The teacher acts as a guide in this process, asking key questions that will lead the learners to individual and communal discoveries of information, concepts, and skills.

5. Writing Across the Curriculum

Just as a Socratic approach emphasizing primary source materials will be employed across the entire curriculum, so too will the writing program be incorporated in all classes. Although students will primarily work on writing skills in the dedicated writing classes, all teachers will be thoroughly trained in the fundamentals of the five-paragraph essay as well as research writing in order that the essential skill of writing can be presented and reinforced in all classes consistently and coherently. Since many colleges and universities employ some type of Writing Across the Curriculum program, this approach is one more way in which Sierra Prep will actively prepare students for post-secondary education.

6. Teaching Across the Curriculum

Sierra Preparatory Academy will employ a modified St. Johns approach, which requires that all faculty teach across the curriculum. Teachers will have their core specialties and all will have the proper credentials under NCLB, but all teachers will be required to have, or acquire during their tenure at Sierra Preparatory Academy, the ability to teach at least elementary Latin, Physics I, Algebra, and Writing I. Furthermore, Humane Letters teachers will teach all four levels of Humane Letters in sequence throughout their career as an opportunity to appreciate the curriculum in its entirety. A full sequence (teaching each grade level for two years and then moving on) will take eight years. Generally it takes 10 years to develop true expertise and by continuously cycling through the Humane Letters program, teachers will gain better perspective in order to achieve that level of expertise.

C. Summative assessments

The methods of assessing student academic gain at Sierra Preparatory Academy reflect the liberal arts school philosophy and methods of instruction. They also allow :

Initial Assessment

Initial assessment will begin when students enter Sierra Preparatory Academy as sixth graders. A placement test in writing and mathematics will be used to identify areas of proficiency/deficiency of individual students as well as any overall challenges for the entering class. Test results will allow Sierra Prep teachers to gear their instruction to the appropriate level and make curriculum adjustments, to anticipate challenges, as well as to create academically balanced sections. Sierra Prep Academy will offer academic counseling for any student who transfers to the school as a high school student in order to advise each transfer student of the appropriate preparation for the curriculum. Parent and community awareness meetings will build support for the school before it opens and ensure that parents are well-informed to support their children's learning in the school's rigorous, liberal arts educational approach.

Ongoing Formative Assessments:

- Faculty-created reading and writing quizzes and tests: Although the primary source materials will be standardized for all classes, teachers will produce their own assessments for each class based upon the dynamics of the class, which will be aligned to standards.

- Trimester Report Cards: Sierra Prep will identify potentially failing students early and provide extra assistance. The school will produce report cards at the end of each trimester and will send mid-trimester updates to all students and deficiency notices to any students who are earning a "D" or "F" in any course. The trimester report card will include a section, which will designate whether students have mastered the Arizona Common Core Standards covered during covered during the trimester. When students receive more than two deficiency notices in mid-trimester, families will be required to attend early parent-teacher conferences. Remediation plans developed for students may include required extra tutoring, a zero-hour class before school in the subject the student is failing, multiple conferences, etc.
- ACUITY formative tests: Sierra Prep also will administer Acuity formative tests in October, November and February. Acuity is aligned to the Arizona Common Core standards, and results predict how students will perform on AIMS tests. When the formative assessment tests reveal weak areas, teachers will use Acuity materials to give students additional assistance and practice so they can meet the AIMS performance objectives.
- Homework: Homework is an essential part of preparatory studies and as such is a primary source for the assessment/evaluation of student progress. Homework is a time of quiet concentration in which the student truly makes the subject his or her own, and regular assignments reserve class time for instruction, discussion, dialogue and the collective pursuit of truth. Although study habits of individual students vary widely, students should be prepared for two to three hours of homework each night. High school students should expect up to one hour of homework for Humane Letters each night and one-half hour for other subjects. Junior high students should expect up to twenty-five minutes of homework per class each night.

Comprehensive Summative Student Evaluation

Consistent with its liberal arts philosophy, Sierra Preparatory Academy will place great emphasis on the methods of student evaluation which includes a rigorous narrative analysis of all aspects of a student's work including participation, attitude, homework, quizzes, and tests. It is our explicit intention to de-emphasize letter grades in our community of learners, and we believe that the narrative method of assessment combined with substantial parent-teacher conferences allows us to evaluate the whole student in a meaningful and individual way.

- First Trimester Evaluation: Midway through the first trimester, all students will receive a brief update of progress, and at the end of the trimester faculty will produce a written narrative document for each course for each student that indicates an overall grade and objective breakdown of different evaluative areas of a student's achievements in categories such as sense of wonder and depth of inquiry, attitude, participation, essays, tests, quizzes, homework, special projects, and presentations. The narrative evaluation will also include an evaluative area, which will designate whether they have mastered the Arizona Common Core Standards covered during covered during the trimester. Parent-teacher conferences will then be held for all students in order to review the data. In the high school, students will be present for their conferences and in the 11th and 12th grades, the students will lead the discussions of their progress in an effort toward substantial self-assessments.
- Second Trimester Evaluation: Evaluations for the second trimester will be conducted in the same fashion as the first trimester including parent-teacher conferences for all students.
- Year-End Evaluation: Students will, once again, receive mid-trimester updates in the third trimester, and faculty will prepare shorter summary evaluations at the end of the final trimester.

Final Assessment/Evaluation

- Norm and Criterion-Referenced Tests: The final level of assessment/evaluation of student progress and effectiveness of the curriculum will be accomplished through the administration and review of results from Stanford 10 and the Arizona Instrument to Measure Standards (AIMS) Tests (subsequently PARCC).