



# *Curriculum Guide*

*The Joy of Torah - for Life*

# Four-Year Curriculum at a Glance

## FOUR-YEAR CURRICULUM AT A GLANCE

מוסר	תנ"ך/בקיאות	הלכה	גמרא	
מסילת ישרים	תנ"ך/בקיאות	משנה ברורה חלק א'	Learn to make a "leining" on <i>Gemara</i> and <i>Rashi</i>	9th Grade
חבות הלבבות	תנ"ך/בקיאות	משנה ברורה חלק ב'	Learn to make a "leining" on <i>Tosfos</i> and <i>mefarshim</i>	10th Grade
שערי תשובה	תנ"ך/בקיאות	משנה ברורה חלק ג'	Material is prepared before <i>shiur</i> with <i>chavrusa</i>	11th Grade
Self-Study	תנ"ך/בקיאות	משנה ברורה חלק ד', ה' & ו'	<i>Shiur</i> is given assuming that the student is prepared with a good understanding of all texts	12th Grade

	English	Math	Science	History	Elective
9th Grade	Contemporary Literature I	College Prep/Honors Geometry	College Prep/Honors Biology	World History	Music/ Basketball*
10th Grade	Contemporary Literature II	College Prep/Honors Algebra	College Prep/Honors Chemistry	U.S. History I	Music/ Basketball*
11th Grade	British/World Literature I	College Prep/Honors Pre-Calculus	College Prep/Honors Physics	U.S. History II	Music/ Basketball*
12th Grade	British/World Literature II	Advanced Calculus	Genetics	Economics	Music/ Basketball*

\* Plus additional electives that vary from year to year.

# 9<sup>th</sup> and 10<sup>th</sup> Grade Schedule

## 9TH AND 10TH GRADE FTI DAILY SCHEDULE

	SUN	MON	TUES	WED	THURS	FRI
שחרית	8:00	7:40	7:40	7:40	7:40	7:40
BREAKFAST	Following שחרית	Following שחרית	Following שחרית	Following שחרית	Following שחרית	Following שחרית
גמרא	9:25	9:20	9:10	9:10	9:20	9:20
הלכה	11:55	11:55	11:55	11:55	11:55	שמעוס 11:30/11:55 (Early/Late שבת)
LUNCH	12:30	12:30	12:30	12:30	12:30	Dismissal 12:00/12:30
חומש	1:00	1:25	1:25	1:25	GYM	
מנחה	1:45	2:15	2:15	2:15	2:15	
PERIOD 1		2:27	2:27	2:27	2:27	
PERIOD 2		3:15	3:15	3:15	3:15	
PERIOD 3		4:00	4:00	4:00	4:00	
PERIOD 4		4:45	4:45	4:45	4:45	
PERIOD 5/ELECTIVE		5:30	5:30	5:30	5:30	
Dorm מעריב	7:15	7:15	7:15	6:45	7:15	
Night סדר	7:30	7:30	7:30	משמר - 7:00	7:30	

The centerpiece of the *Limudei Kodesh* program is the intensive study of *Gemara* and classical *meforshim*. The primary objective is to develop the language, critical thinking, and reasoning skills necessary for sophisticated learning.

The *shiurim* emphasize careful and thorough examination of the text and dialogue of the *Gemara*, *Rashi*, *Tosfos*, and *meforshim*. Under the guidance of the *Rebbe*, *talmidim* are encouraged to develop a mature understanding of differing opinions, proof - and - refutation, and stated and implied conclusions.

The *shiurim* are challenging and highly interactive so that *talmidim* are stimulated and involved, and they are encouraged to exercise their own intellect in the learning process.

**Grade 9** – Students will cover half an **עמוד** a week of **גמרא**, **רש"י**, and many **'תוס'**. By the year's end they will cover most **'תוס'** and some **מפרשים**. Students will attain a comfort level in reading of **גמרא**, **רש"י** and **'תוס'**. By the end of the year they will be able to make a *"leining"* on **גמרא** and **רש"י**.

**Grade 10** – Students will cover half an **עמוד** a week of **גמרא**, **רש"י** and some **מפרשים**. Students will learn how to "dissect" a **'תוס'**. By the end of the year they will be able to make a *"leining"* on **'תוס'**.

**Grade 11**– Students will prepare the material on their own. They will have **שיעור** to review and deepen their grasp of the subject material and begin to learn **אחרונים**.

**Grade 12** – **בית מדרש** style. Students prepare the material on their own and in **שיעור** they will explore topics on a deeper level and learn **אחרונים** and select **ראשי ישובות**.

**Objective:** To inspire a love for learning while building skills and increasing comprehension.

## I.) Comprehension

- A.) *Lumdu*s
- B.) Contrasting the **הוה אמינא** to the **מסקנא**
- C.) The mechanics of a "Proof"
- D.) What's bothering **רש"י**
- E.) Contrasting differing explanations of the same **גמרא** by two **מפרשים**
- F.) Drawing conclusions
- G.) Seeing the big picture

## II.) Skill Set - “The Way ש”ס Works”

- A.) Who is speaking
- B.) Not losing a train of thought
- C.) Antecedents
- D.) Relating גמרא back to the משנה
- E.) Style and flow of משנה and גמרא
- F.) Recognizing an implied step or question
- G.) Punctuating and recognizing where the question ends and where the answer begins
- H.) דיוקים - Making inferences

## III.) Vocabulary

- A.) Recognizing common words and phrases
- B.) Connecting words to common usages in גמרא
- C.) Increasing vocabulary

## IV.) Who’s Who in ש”ס and פוסקים

- A.) Awareness of timeline of תנאים, אמוראים, ראשונים, אחרונים

## V.) ידיעות

- A.) General ש”ס concepts

# מוסר

Fundamental *mussar* values, such as character development, human dignity, *derech eretz*, honesty, humility, and responsibility to *Klal Yisroel*, are an integral part of the ethical personality of the *Ben Torah*. These values play a vital role in all areas of development, including one’s growth in learning, one’s ability to confront the challenges of life, and appreciation of the richness and beauty of *Yiddeshkeit*.

These concepts are presented in a manner consistent with the principle that all learning is most effectively transmitted by actively engaging the *talmid*’s intellect. The program includes regular daily *shiurim* in the classical *mussar* works, weekly *shmuesin*, and *shiurim* in *Chumash* and *Navi* where these principles are identified and elucidated.

**Objective:** To inspire an enduring love and appreciation for the study of **תורה שבכתב** with **מפרשים**. This lifelong endeavor forges a meaningful and profound understanding of one's self, his universe, and his Creator.

9th Grade – **פרשת השבוע** until **שני** with **רש"י** and **שפתי חכמים**

10th Grade – **פרשת השבוע** until **שלישי** with **מפרשים**

11th Grade – **פרשת השבוע** until **רביעי** with **מפרשים**

12th Grade – **פרשת השבוע** full **פרשת השבוע** - self study

The course syllabus primarily consists of the following classical commentaries:

**גור אריה** and **שפתי מזרחי** (as elucidated by **פירוש רש"י**)

**פירוש הרמב"ן**

**פירוש רבי עובדיא ספורנו**

Pertinent **פסקי הלכה** and **מדרשים**

## I. Develop Textual Skills

- A.) Broaden vocabulary base
- B.) Master essential grammar principles
- C.) Recognize implied and unspoken questions
- D.) Acquire research techniques

## II. Expand Knowledge Base

- A.) Establish context and perspective to appreciate particular events
- B.) Identify Halachic and/or historical implications of all subject matter
- C.) Develop a mature understanding of previously learned material

## III. Establish Relevance

- A.) Identify ethical and moral ideals revealed by Torah
- B.) Illuminate the Torah's outlook on the human condition
- C.) Cultivate a genuine identification with **כלל ישראל**

**Objective:** To master practical everyday areas of *Halacha* in an organized sequential way. Students will *Be”H* know the answers to every day *halachic* questions, or know how to find out what should be done, quickly and efficiently, by opening a *Mishna Berura* and being able to read it and understand it.

**Course Material:** *Shulchan Aruch, Orach Chaim* with *Mishna Berura*

**9th Grade** – הלכות covered in 'א משנה ברורה חלק א' which include the הלכות of השכמת הבקר, תפילה, שמע, תפילין, ציצית

**10th Grade** – 'ב משנה ברורה חלק ב' which consists primarily of הלכות ברכות

**11th Grade** – הלכות שבת - משנה ברורה חלק ג'

**12th Grade** – הלכות ערובין ויום טוב - משנה ברורה חלקים ד', ה', ו'

# Mathematics Curriculum

## Geometry Course Description

The course is a traditional geometry course. Some of the topics covered include:

- Reasoning and introduction to proof
- The language of geometry
- Use of the law of detachment and the law of syllogism in deductive reasoning
- Parallels
- Congruent triangles
- Identifying medians, altitudes, and angle bisectors in triangles
- Quadrilaterals: Recognizing and defining various types of quadrilaterals
- Similarity
- Right triangles and trigonometry
- Circles

## Algebra II Course Description

Students will acquire a deep and thorough understanding of various mathematical concepts.

### Equations and Inequalities

- Expressions and Formulas
- Properties of Real Numbers.
- Solving Equations. Absolute Value Equations. Inequalities. Absolute Value Inequalities.

### Graphing Linear Equations and Functions

- Relations and Functions.
- Linear Equations. Linear Inequalities.
- Slope.

### Solving Systems of Linear Equations and Inequalities

- Graphing Systems of Equations and Inequalities.
- Solving Systems of Equations Algebraically.
- Cramer's Rule.
- Solving Systems of Equations in Three Variables.



# Mathematics Curriculum

## Exploring Polynomials and Radical Expressions

- Monomials; Polynomials; Complex Numbers.
- Factoring.
- Roots of Real Numbers.
- Radical Expressions.
- Rational Exponents.

## Exploring Quadratic Functions and Inequalities

- Solving Quadratic Equations by Graphing and Factoring.
- Completing the Square.
- The Quadratic Formula and the Discriminant.
- Sum and Product of Roots.

## Analyzing Conic Sections

- The Distance and Midpoint Formulas.
- Parabolas; Circles.

## Exploring Polynomial Functions

- Composition of Functions.
- The Remainder and Factor Theorems.
- Rational Zero Theorem.
- Roots and Zeros.
- Inverse Functions and Relations.
- Square Root Functions and Relations.

## Exploring Rational Expressions

- Graphing Rational Functions.
- Direct, Inverse, and Joint Variation.
- Multiplying and Dividing Rational Expressions.
- Adding and Subtracting Rational Expressions.
- Solving Rational Equations and Inequalities.

## Exploring Exponential and Logarithmic Functions

- Real Exponents and Exponential Functions.
- Logarithms and Logarithmic Functions.

# Mathematics Curriculum

## Pre-Calculus Course Description

Students will acquire a deep and thorough understanding of various mathematical concepts.

### Functions and their Graphs

- Graphs of Equations.
- Shifting, Reflecting, and Stretching Graphs.
- Combinations of Functions.
- Inverse Functions.

### Polynomial and Rational Functions

- Rational Functions.
- Partial Fractions.

### Exponential and Logarithmic Functions

- Exponential Functions and their Graphs.
- Logarithmic Functions and their Graphs.
- Properties of Logarithms.
- Exponential and Logarithmic Equations.

### Trigonometry

- Radian and Degree Measure.
- Trigonometric Functions: The Unit Circle.
- Right Triangle Trigonometry.
- Trigonometric Functions of Any Angle.
- Graphs of Sine and Cosine Functions.
- Graphs of Other Trigonometric Functions.
- Inverse Trigonometric Functions.

### Analytic Trigonometry

- Using the Fundamental Identities.
- Verifying Trigonometric Identities.
- Solving Trigonometric Equations.
- Sum and Difference Formulas.
- Multiple-Angle and Product-to-Sum Formulas.

# Mathematics Curriculum

## Advanced Calculus Syllabus

In Advanced Calculus, students will acquire a deep and thorough understanding of various mathematical concepts.

### Course Overview

The purpose of this course is to (1) prepare students for success in collegiate mathematics and (2) prepare students for success on the Advanced Calculus AB exam. I believe that, as an instructor, if I take care of the former, the latter will naturally follow.

Each exam in the course is cumulative. Over the course of a school year, students will take 7 cumulative exams and a “mock Advanced exam” final. Exams in the first semester consist of instructor-written questions and multiple-choice items from past Advanced exams. Exams in the second semester consist of former Advanced multiple-choice and free response questions. The free-response rubrics are used in the assessment process.

Students are encouraged to write throughout the course (“where symbols fail, words prevail”). Emphasis is placed upon making connections between concepts and representations.

### Course Outline

**Unit I: Algebra Review and Introduction to Limits**

**Unit II: Introduction to Derivatives**

**Unit III: Applications of Derivatives**

**Unit IV: Second Derivatives and Function Analysis**

**Unit V: In-Depth Review of Transcendentals**

**Unit VI: Integration and its Applications**

**Unit VII: Further Topics for Depth of Understanding**

**Unit VIII: Review for Advanced Exam**

# English Literature Curriculum

## Objectives:

- To develop reading and writing skills that provide students the ability to compete and succeed on a college level.
- To prepare students to think analytically and independently.
- To provide the communication skills required to function in the home, school, community, and our complex world.
- To recognize the benefits of studying literature and learning how to apply important themes to today's world.
- To build genuine appreciation and curiosity for learning.
- To create a positive attitude that fosters a desire to contribute unselfishly to improving the human condition.

## Course Description

### CONTEMPORARY LITERATURE I AND II (Grades 9 and 10)

Students will read, study, analyze, and respond to a variety of genres including fiction, nonfiction, drama, and poetry. The reading material will consist of mostly (but not exclusively) contemporary American authors. The students will examine literary elements such as setting, plot, theme, conflict, characterization, etc. They will also master the poetic devices such as simile, metaphor, personification, hyperbole, irony, meter, rhyme scheme, and imagery. In addition, students will be expected to partake in lively class discussions as we debate the moral and philosophical aspects each author will provide. Each student will be given the opportunity in both written and spoken form to defend a personal opinion or point of view as we closely observe and analyze each text. Occasionally the teacher will also provide current samples of the SAT so that students may be well prepared. The students will be expected to master basic English usage: subject-verb agreement, pronoun case, homonyms, word choice, spelling, and punctuation. This material will be covered thoroughly and often. Frequent written assignments, both brief and lengthy (such as the five-paragraph essay) will reinforce these skills. In addition, the students will master basic sentence structure, which includes knowing how to avoid run-ons and fragments. New vocabulary lists with their accompanying homework assignments also will be provided approximately once or twice a month. Students will also be asked to give an oral report.

### BRITISH/WORLD LITERATURE (Grades 11 and 12)

Virtually every skill mentioned above will be reinforced for the upper classmen. The difference is that the rigor will be much more challenging, and the breadth of material will cover American, British, and World Literature from various time periods. In addition to our class discussions, students frequently will be expected to compose expository essays that defend a thesis. The vocabulary lists will be more demanding, and the grammatical exercises will evolve from basic to advanced. The study of English usage, spelling, and punctuation will continue, as will practicing for the SAT. Students will be expected to identify and explain parallel structure, compound-complex sentences, misplaced modifiers, syntax, and tone. As the students write, revise, and revise again, the teacher will assist at all levels to ensure that the students have every opportunity to earn an excellent grade. Independent reading and writing assignments are also part of the curriculum as both a requirement and as extra credit. An oral report and/or group presentation will also be expected.

## Science Curriculum Sequence

FTI offers a complete series of science courses with the goal of enabling all students to successfully apply to and be accepted by any college or university as a science, pre-med., or engineering major. Each course, starting with 9th grade and leading to the senior science elective, builds on knowledge and concepts from the previous year, and students are exposed to current discoveries in this rapidly changing discipline as well as all the important classical discoveries in science. FTI science and math classes cooperate to allow students to use their math skills in solving many problems of modern science. The result is that students at FTI will graduate with a solid background equal to any college preparatory school in the country.

## Our Science Offerings

### **Biology: The Study of Life. (9th grade)**

This class studies the latest knowledge as well as the classical discoveries of cell structure, DNA, genetics, and biochemistry. Students are kept up to date whenever a new discovery is made in this rapidly changing field. In addition, students will have the opportunity to study animal and plant anatomy and physiology, using both live and preserved specimens, with microscopes and other equipment available to FTI.

### **Chemistry: The Study of Composition, Properties, and Interactions of Substances. (10th grade)**

Chemistry students build on previous concepts covered in the biochemistry unit of biology, as well as many topics from environmental science. Students learn classical and modern atomic theory and how to balance equations, while observing various physical and chemical changes. They will use their algebra skills (plus some use of scientific calculators) to solve problems of molecular structure and composition.

# Science Curriculum

## **Physics: The Study of Matter, Motion, and the Interactions of Objects. (11th grade)**

Starting with classical discoveries of Newton, Kepler, and Galileo, students study the dynamics of moving objects ranging from cars to planets. Through many lab experiments students will verify for themselves how the forces of nature manifest in our everyday experiences. Other topics include wave motion, light, sound, and electricity. This class is based on a background in algebra and some trigonometry (which will be reviewed or taught as needed). Scientific calculators are a must: a TI 30 or TI 84 must be provided by students. In addition to the study of classical physics, students are exposed to modern topics, such as relativity and quantum mechanics, with the history of these discoveries by Einstein, Bohr, and others in the 20<sup>th</sup> Century.

## **Genetics: The Study of the Biochemical and Physical Inheritance of Organisms. (12th grade elective)**

Students of genetics will make use of *Drosophila* (fruit-flies) to study first-hand the inheritance of genes through year-long breeding experiments. Classwork includes classical Mendelian genetics as reviewed and extended from their previous biology class and modern biochemical studies of gene structure and function. Students learn statistical methods to study about genetic disorders and how scientists test results of lab and field experiments. Since this is such a dynamic subject, students are exposed to new information almost daily, and therefore will be kept up to date on the latest findings in this discipline.

## **Awards**

The FTI science department will be participating in various awards programs recognizing exceptional achievement in the sciences. Top students may receive nationally recognized prizes such as the **Massachusetts Institute of Technology NEST Award (Network of Educators in Science and Technology)**, which is recognized by MIT as a coveted prize worthy of the name of this famed university. Another prize awarded to students at FTI is the **American Association of Physics Teachers: Physics Student of the Year Award**.

# *United States History I Curriculum*

## **Scope of Course**

The classroom material will roughly cover the founding of the English colonies in North America to the Reconstruction. Material will be covered in detail with an emphasis on ideas that shaped the American identity throughout its early history.

## **Objectives:**

- Over the course of the year, we will evaluate the origin of the founding principles of the United States and analyze how they developed throughout the country's early years until they are tested by fire on the battlefields of the Civil War. Among these principles are democracy, republicanism, dual federalism, and common law.
- We will discuss the growth of the United States' political and commercial character as it attempts to define its borders and find its place in the world.
- We will examine the role of slavery and its influence on American politics and the growth of sectionalism that led to the Civil War.

## **Overview of the School Year**

### **First Quarter**

- Main Theme: Development of Colonial America
- Summary: The quarter begins with a review of English motivation for settlement in North America. Study continues with an overview of the problems facing early colonial America as well as the systems and institutions formed as a synthesis of Old World political and social ideology with the reality of New World conditions. The quarter closes with the clash of nations as the French and British Empires vie for control of the North American continent.

# *United States History I Curriculum*

## **Second Quarter**

- Main Theme: Birth of the American Nation
- Summary: The quarter begins with an analysis of the fallout from the colonial wars between Britain and France. Study continues as we examine the social, political, and economic pressures that drive colonial leaders to rebel against British authority and set up a separate sovereign nation. The quarter closes with an analysis of the new republic's early years and the development of a government under a new constitution.

## **Third Quarter**

- Main Theme: Crisis of Identity and an Expanding Nation
- Summary: The quarter begins with an overview of national expansion under the Jefferson administration and the final "independence" treaty with Britain following the War of 1812. Study continues with national growth and change from a period of national unity to years of sectionalism and divergent economic development that exhibit their earliest overt symptoms during the years of John Quincy Adams and Andrew Jackson. The quarter closes as rapid American growth reaches its zenith with the Mexican War and the conflict surrounding the admission of California as a state.

## **Fourth Quarter**

- Main Theme: Civil War and Reconstruction
- Summary: The quarter begins with an overview of sectionalism, slavery, and national politics as it developed up to the 1850s. Study continues with an analysis of the Civil War's immediate causes and the course of the conflict itself. The quarter closes as we examine the development of and eventual failure of Reconstruction.



# *United States History II Curriculum*

## **Scope of Course**

The classroom material will roughly cover the aftermath of Reconstruction to present-day America. Material will be covered in detail with an emphasis on ideas that formed the modern American identity.

## **Objectives:**

- Over the course of the year, we will evaluate the synthesis of modern ideas and culture with the founding principles of the United States and analyze how they develop into new ideas and institutions.
- We will examine how periodic conflict shaped the modern American identity and laid the groundwork for its global role and eventual superpower status.
- We will discuss the pressures of post-modern global issues following the end of the Cold War and the rise of international terrorism.

## **Overview of the School Year**

### **First Quarter**

- Main Theme: Development of Modern America
- Summary: The quarter begins with an overview of the changes taking place in American politics and society following the Civil War. Study continues as we examine the new inventions and developments that lay the foundation for modern America. We conclude the quarter with a review of the social and political conditions that lay the groundwork for Progressive reform.

### **Second Quarter**

- Main Theme: Great White Fleet to Great Depression
- Summary: The quarter begins with the birth of the modern American institution and changes. Study continues with an analysis of the United States' growing role in global affairs and eventual involvement in World War I. Further study includes an examination of post-war political and business practices that lay the groundwork for international depression. The quarter concludes with an examination of the details of the Great Depression and an evaluation of efforts to resolve it.

# *United States History II Curriculum*

## **Third Quarter**

- Main Theme: Rise of the American Superpower
- Summary: The quarter begins with an examination of how social, economic, and political conditions in Europe led to another world war. Study continues as the military and economic growth of the United States during the war years lead it to superpower status. The quarter concludes with an overview of Cold War politics and international developments that lead to the demise of the Soviet Union.

## **Fourth Quarter**

- Main Theme: Global Challenges of Post-Modern America
- Summary: Study begins with an analysis of changes taking place within American society from World War II to the present. Study continues with an overview of prevailing civil rights trends that affect American politics. The quarter concludes with an examination of recent political developments and the struggle against international terrorism.

# *World History Curriculum*

In World History you will develop a greater understanding of the evolution of global processes and contacts including interactions over time. The course highlights the nature of changes in international frameworks and their causes and consequences, as well as comparisons with other societies. The course will give a broad overview of World Religions and Ancient/Medieval influences over the modern world. The course will then emphasize modern history from 1500 to the present.

**Content Standard 1—WORLD RELIGIONS AND ANCIENT/MEDIEVAL SUMMARY TO 1500**

**Content Standard 2—RENAISSANCE, REFORMATION, AND THE AGE OF EXPLORATION, 1300-1700**

**Content Standard 3—ABSOLUTISM AND REVOLUTIONS, 1500-1900**

**Content Standard 4—INDUSTRIAL REVOLUTION THROUGH WORLD WAR II AND THE BEGINNING OF THE COLD WAR**

**Content Standard 5—POST-WORLD WAR II TRANSFORMATIONS**

**Content Standard 6—GLOBALISM, TERRORISM, AND CONTEMPORARY ISSUES**

# *Economics Curriculum*

## **Scope of Course**

The classroom material will roughly cover basic economic principles and examine how those principles are applied at various levels of society and government.

## **Objectives:**

- Over the course of the year, we will evaluate fiscal policy at various levels of government, attempting to ascertain the pros and cons of particular political strategies and their effects upon economic growth and public debt.
- We will examine key features of microeconomics and macroeconomics from the perspective of real-life models.
- We will discuss the historic impact of prevailing economic and political trends and relate them to current issues and debates.

## **Methodology**

In class we use a blend of activities and projects as well as traditional forms of instruction. Lessons usually begin with lecture sessions that deliver desired information and ideas to set the stage for future discussions. Students are then expected to apply the information in various assignments, individual projects, and group activities. Depending upon the scope of the objectives, some activities may be planned in conjunction with relevant lessons in other disciplines (science, literature, etc.).



*The Joy of Torah - for Life*

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