Harvard-Style Undergraduate Physics & Astronomy Study Plan

Year 1:

- Mechanics: Kleppner & Kolenkow — An Introduction to Mechanics
- Electromagnetism I: Purcell & Morin — Electricity and Magnetism
- Waves: A.P. French — Vibrations and Waves
- Math Foundations: Boas — Mathematical Methods in the Physical Sciences

Year 2:

- Electromagnetism II: Griffiths — Introduction to Electrodynamics
- Quantum Mechanics I: Griffiths — Introduction to Quantum Mechanics
- Thermodynamics: Schroeder — An Introduction to Thermal Physics
- Special Relativity: Taylor & Wheeler — Spacetime Physics

Year 3:

- Quantum Mechanics II: Shankar — Principles of Quantum Mechanics
- Statistical Physics: Reif — Fundamentals of Statistical and Thermal Physics
- General Relativity: Carroll — Spacetime and Geometry
- Astronomy I: Carroll & Ostlie — An Introduction to Modern Astrophysics

Year 4:

- Cosmology: Ryden — Introduction to Cosmology, Dodelson — Modern Cosmology
- Stellar & Galactic Physics: Maoz — Astrophysics in a Nutshell; Binney & Merrifield — Galactic Astronomy
- Compact Objects: Shapiro & Teukolsky — Black Holes, White Dwarfs, and Neutron Stars
- Experimental Physics: Horowitz & Hill — The Art of Electronics; Melissinos — Experiments in Modern Physics

Supplementary:

- Feynman Lectures on Physics (conceptual mastery)
- Goldstein — Classical Mechanics (advanced reference)
- Sakurai — Modern Quantum Mechanics (advanced quantum)
- Arfken & Weber — Mathematical Methods for Physicists (advanced math)

Full Textbook List:

1. Foundations

Mechanics:

- Kleppner & Kolenkow — An Introduction to Mechanics
- Goldstein — Classical Mechanics

Electromagnetism:

- Purcell & Morin — Electricity and Magnetism
- Griffiths — Introduction to Electrodynamics

Waves:

- A.P. French — Vibrations and Waves

2. Quantum Physics:

- Griffiths — Introduction to Quantum Mechanics
- Shankar — Principles of Quantum Mechanics
- Sakurai — Modern Quantum Mechanics

3. Statistical Physics & Thermodynamics:

- Reif — Fundamentals of Statistical and Thermal Physics
- Schroeder — An Introduction to Thermal Physics

4. Relativity:

- Taylor & Wheeler — Spacetime Physics
- Carroll — Spacetime and Geometry

5. Mathematical Methods:

- Boas — Mathematical Methods in the Physical Sciences
- Arfken & Weber — Mathematical Methods for Physicists

6. Astronomy & Astrophysics:

- Carroll & Ostlie — An Introduction to Modern Astrophysics
- Ryden — Introduction to Cosmology
- Dodelson — Modern Cosmology
- Maoz — Astrophysics in a Nutshell
- Binney & Merrifield — Galactic Astronomy

- Shapiro & Teukolsky — Black Holes, White Dwarfs, and Neutron Stars

7. Experimental Physics:

- Horowitz & Hill — The Art of Electronics

- Melissinos — Experiments in Modern Physics

8. Insight:

- Feynman Lectures on Physics