DEPARTMENT OF PHYSICS

Head: R. R. Haering

COURSE REQUIREMENTS

PHYSICS MAJORS

Semesters 1 and 2

Physics 101-3, 102-3
Mathematics 111-3, 112-3
Chemistry 101-3, 102-3

12 Semester hours of electives

Total: 30 Semester Hours

Semesters 3 and 4

Physics 211-3, 221-3, 231-3, 232-3
Mathematics 213-3, 214-3, 221-2, 231-3

7 Semester hours of electives

Total: 30 Semester Hours

Semesters 5, 6, 7, and 8

Physics 331-3, 332-3, 341-4, 351-4, 381-4, 382-4, 421-4, 431-4
Mathematics 411-4, 412-4, 413-4, 414-4

14 Semester hours of electives

Total : 60 Semester Hours

PHYSICS HONORS

The honors program is identical with the major program up to the end of the fourth semester. Entry into the 5th Semester of the honors program requires departmental approval. Students will be permitted to continue in the honors program only if they maintain an average grade of B or higher.

Semesters 1 and 2

Physics 101-3, 102-3
Mathematics 111-3, 112-3
Chemistry 101-3, 102-3

12 Semester hours of electives

Total: 30 Semester hours

Semesters 3 and 4

Physics 211-3, 221-3, 231-3, 232-3
Mathematics 213-3, 214-3, 221-2, 231-3

7 Semester hours of electives

Total: 30 Semester Hours

Semesters 5, 6, 7, and 8

Physics 331-3, 323-3, 341-4, 351-4, 381-4, 382-4, 431-4, 421-4, 421-4, 431-4. 432-4, 461-4, 471-4.
Mathematics 411-4, 412-4, 413-4, 414-4, 422-4, one of 431-4, 461-4, 462-3.

Total: 73 or 74 Semester Hours

Foreign Languages:

Most graduate shcools require some proficiency in one or two foreign languages. The study of Russian is recommended by the Department of Physics. These who contemplate graduate studies in this field are advised to include foreign language courses in their program.

PRESENTATION OF COURSES

Semester	Courses to be Offered
Summer Semester 1966	Physics 101-3, 102-3, 211-3, 231-3, 232-3, 331-3, 323-3, 341-4, 381-4
Fall Semester 1966	Physics 101-3, 102-3, 221-3, 231-3, 232-3, 331-3, 323-3, 351-3, 4 382-4, 411-4.
Spring Semester 1967	Physics 101-3, 102-3, 211-3, 231-3, 232-3, 331-3, 332-3, 341-4, 381-4, 412-4, 431-4, 471-4.

Calendar

DESCRIPTION OF COURSES

101-3 General Physics I

A general survey of mechanics and heat, vectors, statics, dynamics, work, energy, power, elasticity, simple harmonic motion, kinetic theory, temperature, heat transfer, introduction to thermodynamics.

(3, 1, 0)

Prerequisite: Mathematics 91 (High School), Mathematics 111-3 must precede or be taken concurrently.

102-3 General Physics II

A general survey of wave motion, electricity, magnetism, optics, atomic and nuclear physics.

(3, 1, 0)

Prerequisite: Physics 101-3.

211-3 Mechanics I

Kinematics, energy, momentum, free and forced oscillations, elasticity, and motion of rigid bodies.

(3, 1, 0)

Prerequisite: Physics 102-3 or high standing in Grade 13 (British Columbia High Schools). Physics and Mathematics 120; Mathematics 213-3 must precede or be taken concurrently.

221-3 Electricity and Magnetism I

Electrostatics and magnetostatics, resistence, capacitance and in distance, laws of Cosiomb, Ampere and Parsday, DC and AC circuits, consepts of electric and magnetic fields leading up to Maxwell's equations.

(3, 1, 0)

Prerequisite: Physics 102-3 or high standings in Grade 13 (British Columbia High Schools) Physics and Mathematics 120; Mathematics 213-3 must precede or be taken concurrently.

231-3 Introductory Physics Laboratory I

Experiments in mechanics, heat, optics, electricity, magnetism, atomic and nuclear physics.

(0, 0, 4)

Prerequisite: Physics 102-3 or high standing in Grade 13 (British Columbia High Schools) Physics and Mathematics 120. Mathematics 213-3 and Physics 211-3 or 221-3 must precede or be taken concurrently.

232-3 Introductory Physics Laboratory II

A continuation of Physics 231-3.

(0, 0, 4)

Prerequisite: Physics 231-3.

331-3 Intermediate Physics Laboratory I

Experiments in optics, electronics, atomic and nuclear physics.

(0, 0, 4)

Prerequisite: Physics 232-3, Physics 221-3.

332-3 Intermediate Physics Laboratory II

A continuation of Physics 331-3.

(0, 0, 4)

Prerequisite: Physics 331-3.

341-4 Heat and Thermodynamics

Laws of thermodynamics, thermodynamic temperature scale, free energy, entropy, statistical mechanics, gases, solids and liquids.

(4, 1, 0)

Prerequisite: Mathematics 214-3

Elective I.

351-4 Optics

Geometrical and physical optics, interference, diffraction, polarization, coherence, spectra, optical instruments.

(4, 1, 0)

Prerequisite: Physics 211-3, Physics 221-3.

381-4 Modern Physics

Atomic theory, spectra and selection rules, Zeeman effect, X-ray diffraction, radioactivity, nuclear structure, elementary particles, electron scattering, thermionic emission, photo-electric effect.

(4, 1, 0)

Prerequisite: Physics 211-3, Physics 221-3.

382-4 Mathematical Physics

Coordinate systems and curvilinear coordinates, differential and integral equations of Physics, special functions, Numerical Methods and approximation techniques.

(4, 1, 0)

Prerequisite: Mathematics 214-3 and 231-3, Physics 211-3 and Physics 221-3.

411-4 Mechanics II

Central forces, rigid body motion, small oscillations, special theory of relativity, Lagrangian and Hamiltonian formulations of mechanics.

(4, 1, 0)

Prerequisite: Mathematics 214-3 and 231-3, Physics 211-3

412-4 Quantum Mechanics

Foundations of Quantum Mechanics, Schrodinger equation, Perturbation theory, angular momentum, applications.

(4, 1, 0)

Prerequisite: Physics 381-4, Physics 411-4 must precede or be taken concurrently.

421-4 Electricity and Magnetism II

Electrostatics and magnetostatics, potential theory, Maxwell's equations, wave propagation, tensor formulation of electromagnetic theory, radiation from accelerating charges.

(4, 1, 0)

Prerequisite: Physics 221-3 and 382-4.

431-4 Advanced Physics Laboratory I

Advanced experiments in Modern Physics.

(0, 0, 6)

Prerequisite: Physics 332-3.

432-4 Advanced Physics Laboratory II

A continuation of Physics 431-4.

(0, 0, 6)

Prerequisite: Physics 431-4.

461-4 Solid State Physics

Crystal structure, lattice vibrations and thermal properties of solids, dielectric properties of solids, para-, dia- and ferro-magnetism, free electron model, band theory, applications.

(4, 1, 0)

Prerequisite: Physics 381-4.

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471-4 Nuclear Physics

Nuclear structure, nuclear models, radioactivity, nuclear reactions, scattering, accelerators, elementary particles.

(4, 1, 0)

Prerequisite: Physics 381-4.