

Clinical Chemistry

Important Note: RIT is on a quarter system, not a semester system. Therefore, our courses may be distributed differently. For example, Biology I, II, & III at RIT would be equivalent to Biology I & II at most other schools (on semester systems).

MS degree, required courses include:

1009-702 Biochemistry: Biomolecular Conformation & Dynamics

The first course in our graduate sequence in biochemistry. Molecular transport and enzymatic catalysis are related to the three-dimensional structures of biomolecules and the laws of thermodynamics. Also provides an introduction to membrane structure as preparation for the next course in the sequence (1009-703; Biochemistry: Metabolism). Occasionally offered in distance-learning format.

(Baccalaureate Degree or permission of instructor) Class 3, Credit 3 (F,W)

1009-703 Biochemistry: Metabolism

Metabolic processes involved in energy consumption and production as well as the synthesis and degradation of biomolecules are discussed. Metabolic pathways are described in terms of thermodynamic principles, cellular localization and regulation mechanisms. Finally, the metabolic basis of several diseases is presented. Occasionally offered in distance-learning format. (Baccalaureate Degree or permission of instructor) Class 3, Credit 3 (W,S)

1023-820 Advanced Clinical Chemistry I

Electrolytes, acid-base physiology, renal function, trace metals, lipids, carbohydrate metabolism, enzymes, and various standard methods are covered.

(permission of instructor) Class 4, Credit 4 (offered alternate years)

1023-821 Advanced Clinical Chemistry II

A study of the concepts and applications of therapeutic drug monitoring, pharmacokinetics, toxicology, inherited disorders of metabolism, liver function tests, protein measurement, hepatitis, porphyrias, vitamins, pediatric clinical chemistry, geriatric clinical chemistry and gene probes. (permission of instructor) Class 4, Credit 4 (offered alternate years)

1023-822 Advanced Clinical Chemistry III

A survey of endocrinology and the immunoassay methods used in performing endocrine assays. The endocrine systems covered include the thyroid, the adrenals, calcium metabolism, growth hormone, the human reproductive system and the fetal-placental unit. Class 4, Credit 4 (offered alternate years)

1023-823 Advanced Clinical Chemistry IV

Introduces the student to the types of instrumentation and analytical methods commonly found in the clinical laboratory. Instrumentation and methods covered include UV-visible spectroscopy, immunoassay, GC-MS, HPLC, TLC, ion selective electrodes, atomic absorption spectroscopy, electrophoresis, osmometry, nephelometry and multi-analyzers. The laboratory component serves to provide hands-on experience in these types of procedures and measurements.

Class 3, Lab 3, Credit 4 (offered alternate years)

0102-740 Organizational Behavior & Leadership

This is a first course in management. Students will explore models for managing behavior in individuals and teams in organizations. Topics include motivation, team building, conflict resolution, leadership, organizational change and managing organizational cultures. Teaching techniques include class discussion, case studies, team exercises and team presentations.

Credit 4

1016-715 Statistics Modeling for Bioinformatics

The principles of statistics as applied to biomedical research, manufacturing of reagents for the clinical laboratory, and as applied to the clinical laboratory analysis are studied. Using a problem oriented approach to probability; normal values; analysis of variance; and quality control; as well as the relationship of these procedures to patient care are studied.

Class 4, Credit 4 (offered alternate years) (S)

1013-736 Special 1D Organic Compounds

A study of the fundamental principles of physical chemistry for clinical chemistry and biotechnology students. Kinetic-molecular theory, quantum mechanics, spectroscopy, thermodynamics and kinetics are presented in application to the life sciences. Not acceptable for BS in chemistry.

Class 4, Credit 4(offered alternate years) (W)

1023-705 Mechanisms of Disease

Mechanisms of cellular injury, the healing process, atherosclerotic heart disease, hypertension, infectious disease, and many other disease states are presented.

Class 4, Credit 4 (offered alternate years) (W)

1023-877 External Clinical Chemistry Research

Research carried out in a laboratory outside of the College of Science. Prior to the initiation of external research, a proposal from the student as well as a commitment of support and direction from the laboratory are evaluated. Credit Variable

OR

1023-879 Clinical Chemistry Research

Research carried out in the College of Science laboratories under the direction of RIT faculty members. The amount of credit awarded for such projects is determined after evaluation of a research proposal. Credit Variable