**Four Year Elective Title**

**Research in Molecular Genetics, Virology, Cell Biology and Genetic Engineering**

**Course Number**

MICR 9000

**Location**

Robert Wood Johnson Medical School & Center for Advanced Biotechnology & Medicine

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**Elective Director**

Sidney Pestka, MD

**Elective Faculty**

RWJMS Department of Molecular Genetics and Microbiology

**Elective Contact**

Gary Brewer, Ph.D

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**Blocks Available**

All

**Duration/Weeks**

Min 12; Max none

**Hours per Week**

40

**Students**

Max 11

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**Lectures/Seminars**

Yes

**Outpatient**

No

**Inpatient**

No

**Housestaff**

No

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**Night Call**

No

**Weekends**

Yes

**Lab**

Yes

**Exam Required**

No

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**Overall Educational Goal of Elective**

To provide the student with an understanding of how a medically related problem is approached using the tools of modern molecular biology.

**Objectives**

- Become proficient in background literature search of a specific problem
- Gain experience in planning experimental approaches to the solution of a specific problem in molecular genetics or microbiology
- Acquire expertise in the modern techniques needed to carry out the proposed experiments
- Learn to interpret experimental data in terms of the problem approached

**Brief Description of Activities**

Interferons, other cytokines, and their receptors (Drs. Pestka, Langer); HIV, HTLV, and retroviral vectors (Drs. Dougherty, Rabson); autoimmune disease (Dr. Ron); arthropod-borne viruses (Drs. Langer, Stollar); post-transcriptional control of protein synthesis: ribosome function, mRNA capping, mRNA stability (Drs. Brewer, Copeland, Kinzy, Peltz, Shatkin); molecular biology of cancer cells (Drs. Brewer, Li, Rabson); RNA polymerase (Dr. Woychik); development of novel therapeutic agents for use against autoimmune disease, protozoan, fungal, or viral infections (Drs. Leibowitz, Peltz, Ron); T-cell apoptosis (Dr. Shi); automated DNA sequencing (Dr. Kinzy).

**Method of Student Evaluation**

Individual evaluation by the research sponsor, based upon level of understanding of the research problem, level of technical skill achieved and experimental results obtained.

**Are There Any Prerequisites for This Elective?** No

**Is This Elective Available to Third Year Medical Students as Well?** No