The first year of the dual degree requires the students to complete the mandatory management core classes and one elective totaling 30 credit hours of coursework towards the MBA part of the dual degree. As is illustrated below, there are a variety of ways in which to complete the requirements for the MBA and MS degrees with three examples shown below. Students have the flexibility to take the year-long elective either in the second or third year of the program. As a result of participating in the dual degree program, students will complete 9 fewer credit hours of biochemistry coursework than they would if they were in the MS program alone. Those 9 hours will be fulfilled by completing WSOM courses which will then be transferred towards completion of the MS degree. Students will complete 12 fewer hours of the MBA elective coursework than they would if they were in the MBA program alone. Those 12 hours will be fulfilled by completing Biochemistry and Biochemistry Electives that will then be transferred toward the completion of the MBA classes. Between the two programs there is a saving of 21 credit hours in the dual degree program over independent participation in both individual programs.

IV. Dual Degree Curriculum:

Students begin in the Weatherhead School of Management (WSOM)

BIOC 412	(3)	BIOC 434	(3)
BIOC elective	(3)	EXAM 600	(1)
ELECT 5	(3)	ELECT 6	(3)

Research oriented MS

With this option, the student can use the maximal number of graduate credit hours to perform research in a biomedical laboratory. The student learns the ups and downs of what research is all about so that one better appreciates that often research progress is a jagged line, not a straight one. This may be especially attractive to students who may have had a positive experience in undergraduate research prior to entering the WSOM. As above, this student enriches the MBA student pool by increasing the diversity with respect to modern experimental science.

Year 1: First year WSOM curriculum.

	Semester 1		Semester 2	
	ACCT 401	(3)	MBAC 507	(3)
	MBAC 504	(3)	MBAC 508	(3)
	MBAC 512	(3)	MBAC 506	(3)
	MBAC 515	(3)	MBAC 517	(3)
	MBAC 511	(3)	ELECT 1	(3)
Year 2.	BIOC 407	(4)	BIOC 408	(4)
	BIOC 412	(3)	BIOC 434	(3)
	BIOC 601	(2)	BIOC 601	(2)
	MIDS 420A/ORBH 430A	(3)	MIDS 420A/ORBH 430A	(3)

research

Course work oriented MS

For the student who has had enough research exposure and wants the maximal breadth in the classroom, the course work oriented program may be the best choice. Although shown as having all the Biochemistry classes in the second year, this could just as easily be split where WSOM and Biochemistry classes are taken together in the second and third year.

Year 1: First year WSOM curriculum

	Semester 1		Semester 2	
	ACCT 401	(3)	MBAC 507	(3)
	MBAC 504	(3)	MBAC 508	(3)
	MBAC 512	(3)	MBAC 506	(3)
	MBAC 515	(3)	MBAC 517	(3)
	MBAC 511	(3)	ELECT 1	(3)
Year 2.	BIOC 407	(4)	BIOC 408	(4)
	BIOC 412	(3)	BIOC 434	(3)
	BIOC electives			

Successful completion of the program would require 75 credits:

Total Hours in the Weatherhead School of Management:	48
Total Hours in the Department of Biochemistry:	27
Total Hours in the Du	

VIII. Approval Signatures:

Dean, Weatherhead School of Management *Dr. Robert E. Widing*	X
Chair, Department of Biochemistry *Dr. Michael A. Weiss*	X
Dean, School of Medicine *Dr. Pamela B. Davis*	X
Dean, School of Graduate Studies Dr. Charles Rozek	X

IX.

lectureships, participating in annual retreats, and one or more journal clubs. Additional events include the general Department of Biochemistry picnics and the Annual Holiday Party in December.

Appendix A - Weatherhead School of Management Elective Courses

In addition to the required Weatherhead core courses + MS Biochemistry courses listed on Table 1, dual degree candidates are required to take 21 credit hours from the following list of elective courses.

ACCT 403	Survey of Accounting
ACCT 414	Corporate Reporting & Analysis
ACCT 418	Fraud, Governance and Reporting
ACCT 431	

OPMT 477

Appendix B

Department of Biochemistry courses and electives for the MBA/MS program. Please note: this list is not all-inclusive.

BIOC 407: Introductory Biochemistry (4 credits): Overview of the macromolecules and small molecules key to all living systems. Topics include: protein structure and function; enzyme mechanisms, kinetics and regulation; membrane structure and function; bioenergetics; hormone action; intermediary metabolism, including pathways and regulation of carbohydrate, lipid, amino acid, and nucleotide biosynthesis and breakdown.

BIOC 408: Molecular Biology: Genes and Genetic Engineering (4 credits): An examination of the flow of genetic information from DNA to RNA to protein. Topics include: nucleic acid structure; mechanisms and control of DNA, RNA, and protein biosynthesis; recombinant DNA; and mRNA processing and modification. Where possible, eukaryotic and prokaryotic systems are compared. Special topics include yeast as a model organism, molecular biology of cancer, and molecular biology of development. Current literature is discussed briefly as an introduction to techniques of genetic engineering.

BIOC 412: Introduction to Physical Biochemistry (3 credits): Interactions between biomolecules are discussed in a system-based approach that stresses quantitative and structural characterization. Topics discussed include site-directed mutagenesis of enzymes, DNA-protein and protein-protein interactions (protein-ligand interactions, with emphasis on protein – nucleic acid interactions).

BIOC 420. Molecular Genetics of Cancer (3 credits)**:** Using a combination of lectures and student presentations, this course provides an in-depth analysis of cancer as a genetic disease in the Mendelian sense of inheritance and in the sense of causation by somatic mutation. The objectives of the course are to examine both the proto-oncogenes and t(BIOC 4) matic mu12(e)-3(cu)-3(r)c 0 0 1 427 amatic mu1

BIOC 434: Proteins and Enzymes (3 credits): A detailed consideration of the structure and function of proteins and enzymes. Topics include: enzyme structure, kinetics, and mechanisms; structural biology of proteins and protein-DNA complexes; and techniques for structural analysis.

BIOC 452. Nutritional Biochemistry and Metabolism (3): Mechanisms of regulation of pathways of intermediary metabolism; amplification of biochemical signals; substrate cycling and use of radioactive and stable isotopes to measure metabolic rates.

BIOC 620: Transcription and Gene Regulation (3 credits): Topics will include Structure of bacterial and eukaryotic RNA polymerases; regulation of transcription initiation; gene-specific eukaryotic transcription factors; promoter clearance; the role of the RNA polymerase II CTD; transcription elongation: pausing and arrest; transcription control in HIV; coupling of transcription and RNA processing.

EPBI 408. Public Policy and Aging (3 credits): Overview of aging and the aged. Concepts in the study of public policy. Policies on aging and conditions that they address. The politics of policies on aging. Emergent trends and issues.

EPBI 431. Statistical Methods I (3 credits): Application of statistical techniques with particular emphasis on problems in the biomedical sciences. Basic probability theory, random variables, and distribution functions. Point and interval estimation, regression, and correlation. Problems whose solution involves using packaged statistical programs.

EPBI 432. Statistical Methods II (3 credits): Methods of analysis of variance, regression and analysis of quantitative data. Emphasis on computer solution of problems drawn from the biomedical sciences. Design of experiments, power of tests, and adequacy of models.

GENE 500 Advanced Eukaryotic Genetics I (3 credits) Fundamental principles of modern genetics; transmission, recombination, structure and function of the genetic material in eukaryotes, dosage compensation, behavior
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s utive.

critical evaluation and thinking skills. Prereq: NTRN 201 and CHEM 223 and BIOL 348 or equivalent.

NTRN 434. Advanced Human Nutrition II (3 credits)**:**

PHRM 413. Molecular and Genomic Pharmacology (3 credits)**:** The primary goal of this seminar style course is the development of a critical approach to the evaluation and design of research in the broad context of the interaction of receptors with endogenous ligands and with drugs and the determination of the polygenetic basis of disease states and interindividual variation in responsiveness to drugs. Lectures and/or journal article presentation will illustrate the application of fundamental principles of chemistry, biochemistry, thermodynamics, genomics, and pharmacology to experimental problem solving. Students and faculty participate as discussion leaders.