MEMORANDUM OF AGREEMENT

BETWEEN

PENN STATE ABINGTON
ABINGTON, PENNSYLVANIA

AND THE

DEPARTMENT OF LABORATORY SCIENCES
COLLEGE OF HEALTH PROFESSIONS
THOMAS JEFFERSON UNIVERSITY
PHILADELPHIA, PENNSYLVANIA

I. PURPOSE

The purposes of this agreement are to establish and maintain an articulated program between the two institutions and to facilitate the transfer of students from Penn State Abington (Penn State) to the entry-level Master of Sciences in Laboratory Sciences degree program (the Program) in the Department of Laboratory Sciences (DLS), College of Health Professions (College).

II. ELEMENTS OF THE AGREEMENT

A. Description of Program

1. The Master of Science in Laboratory Sciences (MSLS) Program prepares students in the field of biotechnology, cytogenetic technology, cytotechnology and medical technology who will
   (a). make lasting contributions to health sciences and health care through clinical laboratory leadership and research exploration;
   (b). address critical management, quality assurance, operational, financial and research study issues in clinical or research laboratories; and
   (c). participate in collaborative educational and research opportunities with faculty, students and laboratory practitioners.
2. The Program provides a mechanism for students to earn the ~~BSLS~~ B.S. in Science and the MSLS degrees in a seamless, integrated "3+2" curriculum. Students are enrolled at Penn State for three (3) undergraduate years or 82 credits. Students are enrolled at Thomas Jefferson University for the senior-level undergraduate year and the graduate year. On completion of program requirements, the BSLS and MSLS degrees are awarded.

Revised 10/10/00

B. Eligibility for the Program

1. Level of entry
   (a). Individuals desiring to participate in the Program may request such consideration as part of their application to Penn State.
   (b). The formal admission decision to the Program may be made after two (2) semesters of undergraduate coursework at Penn State.
   (c). Penn State students admitted to the Program are guaranteed placement without further application fees or admission requirements, provided students meets the grade point and pre-requisite transfer course requirements as described in paragraph II.C, below.

2. Application Process

(a). Candidates meeting the following requirements will be admitted to the combined degree program:

1. Letter of recommendation from the student's academic advisor or other appropriate official of Penn State.
   The recommendation must include a statement as to whether the candidate is "recommended" or "not recommended", and should be followed by an evaluation commenting on the student's academic performance, campus citizenship and the candidate's ability to function in the health professions.
2. Cumulative GPA of at least 2.80 (on a 4.0 scale) for all undergraduate courses completed at Penn State, with a cumulative GPA of at least 3.00 in science courses.
3. Personal statement
4. For students whose native language is not English and who have not taken the English prerequisites at an institution in the United States, an English proficiency examination is required. A minimum score of 550 (written exam) or 207-220 (computerized exam) is recommended on the Test of English as a Foreign Language (TOEFL).
5. International students must submit an evaluation of foreign transcripts by the World Education Service (WES) or comparable agency as part of their initial application to Penn State.
6. A personal interview, if requested.
7. Final decision on any of the requirements of the Application Process is within the discretion of the Office of Admissions and Enrollment Management of the College.

(b). A transfer package including verified copy(ies) of Penn State application and admission documents and Penn State transcripts, as described in paragraph II.B.2.(a)., above, is acceptable in lieu of a separate application to the College.

(c). A candidate's completed transfer package must be received by the CHP no later than three (3) months prior to the Fall term for which the candidate desires to transfer to the College. This will ensure timely processing of the candidates transfer materials.

C. Academic Transfer Requirements and Program Progression

1. A minimum of 82 prerequisite credits must be completed at Penn State. Prerequisite transfer credits for entry to the Program are listed in **Appendix A.**

2. A grade of "C" or better must be earned in each prerequisite course.

3. Provided that the minimum 82 credit transfer and 157 total program credit requirements are maintained, courses completed by the student with a grade of "C" or better at Penn State that have not been used to satisfy the prerequisite transfer credit distribution can be applied in satisfaction of course requirements for substantially similar coursework at the CHP. Similarly, substantially similar courses within the CHP curriculum can be applied in satisfaction of course requirements at Penn State. Examples are listed in **Appendix B.**

4. Students must achieve a grade-point average of 3.0 or higher at the completion of two semesters of undergraduate coursework at the CHP to progress to the final, graduate phase of the Program.

5. The Program will be conducted according to the sequence indicated in the example at **Appendix C.**

6. Final decision(s) on credit for similar coursework taken at either CHP or Penn State is within the discretion of the Registrar or comparable office at each institution.

D. Degree(s) Awarded

Upon successful completion of undergraduate and graduate program requirements, the Bachelor of Science Degree will be awarded by Penn State. The Master of Science in Laboratory Science Degree will be awarded by Thomas Jefferson University.

III. MAINTENANCE

A. Penn State Abington shall designate a person who will serve as coordinator of the Program and as advisor of students who plan to transfer to the College of Health Professions. The coordinator will:

1. Be the responsible party for providing the Penn State Abington institutional recommendation;

2. Maintain files for those Penn State Abington students who intend to transfer to the College of Health Professions;

3. Assemble all necessary credentials for each applicant and mail the completed transfer packet to the College at:

Office of Admissions and Enrollment Management
College of Health Professions, Thomas Jefferson University
130 South 9th Street, Suite 1610
Philadelphia, PA 19107-5233

B. Both Penn State Abington and the College of Health Professions will assure that appropriate personnel in their respective colleges are made aware of the existence of this Agreement and are encouraged to support it. Such persons at Penn State Abington and the College will include: admissions staff, career planning and placement officers, transfer coordinators and science faculty.

C. Personnel from the College of Health Professions will visit Penn State Abington on a regular basis to meet with the coordinator and other appropriate faculty and administrators. Meetings with students will also be arranged, including potential candidates who intend to transfer to the College of Health Professions as well as other students who may simply wish to seek general information.

D. The faculty, staff and administration of Penn State Abington are encouraged to visit the campus of Thomas Jefferson University.

E. The College of Health Professions will supply Penn State Abington with promotional literature. Promotional literature created by Penn State Abington should be reviewed by the College of Health Professions prior to distribution.

IV. EVALUATION

A. To serve as a basis for evaluating the Program, the College of Health Professions will provide aggregate statistical information regarding applications, applicant credentials and admissions decisions. This information will be shared with Penn State Abington.

V. LENGTH OF AGREEMENT

A. This Agreement will continue in effect from year-to-year and will be automatically renewed annually unless terminated or amended.

B. This Agreement may be terminated by either party on June 30 of any calendar year by either institution via written notice one year in advance. The addresses to which written notice is to be sent are specified below:

College:
Lawrence Abrams, Ed.D.
Dean
College of Health Professions
Thomas Jefferson University
130 South 9th Street, Edison Building, Room 715
Philadelphia, Pennsylvania 19107-5233

Penn State Abington:
Karen Wiley Sandler, Ph.D.
Dean & Campus Executive Officer
Penn State Abington
1600 Woodland Road
Abington, Pennsylvania 19001-3990

VI. GENERAL

A. This agreement may only be amended, modified or supplemented by an agreement in writing signed by the parties.

B. This agreement shall be governed by the laws of the Commonwealth of Pennsylvania.

Signed:

For the College:

Lawrence Abrams
Lawrence Abrams, Ed.D.
Dean
College of Health Professions
Thomas Jefferson University
Philadelphia, Pennsylvania

August 21, 2000
Date

For Penn State Abington:

Karen Wiley Sandler
Karen Wiley Sandler, Ph.D.
Dean & Campus Executive Officer
Penn State Abington
Abington, Pennsylvania

October 10, 2000
Date

APPENDIX A.

Prerequisite Transfer Credits for Entry to the Master of Sciences in Laboratory Sciences Program

	BIO-TECHNOLOGY	CYTOGENETIC TECHNOLOGY	CYTO-TECHNOLOGY	MEDICAL TECHNOLOGY	PENN STATE-ABINGTON SUGGESTED COURSES FOR TRANSFER	
	credits	credits	credits	credits	*transfer courses selected from:*	
Biological Sciences	**16**	**16**	**20**	**16**	BIOL 110	4
					MICRB 201/202	5
					BIOL 230W	4
					BIOL 422W	3
					BMB 400	3
					BIOL 4XX electives to bring total to 16 or 20 credits, depending on program	
Physiology	**4**	**4**	**4**	**4**	BIOL 141/142	4
Gen Chemistry I & II, with lab	**8**	**8**	**8**	**8**	CHEM 012/014	4
					CHEM 013/015	4
Organic Chemistry	**4**	**4**	**--**	**4**	*CHEM 034 *or* 038	3-4
Biochemistry	**4**	**4**	**4**	**4**	BMB 101	3
College-level Math	**3**	**3**	**3**	**3**	MATH 140	4
Statistics	**3**	**3**	**3**	**3**	STAT 200 *or* 250	4 or 3
English	**6**	**6**	**6**	**6**	ENGL 015	3
					ENGL 202C	3
Electives	**34**	**34**	**34**	**34**	Sufficient number of elective credits from any area of study to bring total transfer credits to 82	
Total Transfer Credits	**82**	**82**	**82**	**82**		

* Organic Chemistry is not required if selecting Cytotechnology Track.

APPENDIX B.

Examples of Substantially Similar Courses That May Be Taken at Either Institution

Penn State Abington Course		Thomas Jefferson University Course
MICRB 410 Principles of Immunology (3)	=	MT 331 Immunology (3)
BMB 400 Molecular Biology (3)	=	LS 301 Molecular Biology (3)
BIOL 437 Histology (4)	=	LS 311 Functional Histology (2)

APPENDIX C. - *COURSE SEQUENCE*

First Year – Penn State Abington

FALL SEMESTER		
BIOL 110	Biology: Basic Principles and Biodiversity	4
CHEM 006	Problem Solving in Chemistry	1
CHEM 012	Chemical Principles	3
CHEM 014	Experimental Chemistry	1
MATH 140	Calculus I	4
ENGL 015	Rhetoric and Composition	3
PSU 001	First Year Seminar	1
		17
SPRING SEMESTER		
MICRB 201	Introductory Microbiology	3
MICRB 202	Introductory Microbiology Laboratory	2
CHEM 013	Chemical Principles	3
CHEM 015	Experimental Chemistry	1
MATH 141	Calculus II	4
Gen Ed	(Social Sciences/Humanities/Arts)	3
		16

Second Year – Penn State Abington

FALL SEMESTER		
BIOL 230W	Biology: Molecules and Cells	4
CHEM 034 or 038	Organic Chemistry	3 or 4
STAT 200 or 250	Statistics	4 or 3
Gen Ed	(Social Sciences/Humanities/Arts)	3
Gen Ed	(Social Sciences/Humanities/Arts)	3
		16-18
SPRING SEMESTER		
BIOL 422W	Genetics	3
CHEM 035 or 036/039	Organic Chemistry	3 or 5
BIOL 141	Physiology	3
BIOL 142	Physiology Laboratory	1
ENGL 202C	Technical Writing	3
Gen Ed	(Social Sciences/Humanities/Arts)	3
		16 or 18

Third Year – Penn State Abington

FALL SEMESTER		
PHYS 215	Physics	4
SPCOM 100	Communication	3
ESACT	Phys Ed	1.5
BBH XXX	Health Science	1
BIOL 4XX	Biology Elective*	3-4
Gen Ed	(Social Sciences/Humanities/Arts)	3
		15.5-16.5
SPRING SEMESTER		
PHYS 265	Physics	4
BMB 101	Principles of Biochemistry	3
ESACT XXX	Phys Ed	1.5
BIOL 4XX	Biology Elective*	3-4
Gen Ed	(Social Sciences/Humanities/Arts)	3
		14.5-15.5
**TOTAL PENN STATE ABINGTON CREDITS		95 – 107

** Note: Foreign language requirement of 8 credits or second semester standing must also be fulfilled.

* Choose biology electives from the following choices:

BIOL 430	Developmental Biology (3)
BIOL 437	Histology (4)
BIOL 460	Human Genetics (3)
BIOL 465	General Cytology (3)
BIOL 469	Neurobiology (3)
BIOL 472	Mammalian Physiology (3)
BIOL 479	General Endocrinology (3)
BIOL 497	Special Topics (with approval of Program Coordinator)
BMB 400	Molecular Biology of the Gene (3)
MICRB 410	Principles of Immunology (3)

Fourth Year – Thomas Jefferson University

Curriculum – MSLS (Biotechnology)

UNDERGRADUATE PHASE

FALL SEMESTER I	*Credits*
ID 310 Healthcare Informatics	3
LS 302 Introduction to Laboratory Practice	2
LS 311 Functional Histology	2
LS 301 Molecular Biology	4
BT 310 Basic Molecular Techniques	3
CG 311 Medical Genetics Laboratory	1
CG 301 Medical Genetics	3
MT 331 Immunology	3
	21

SPRING I	
ID 527 Statistics, Epidemiology and Inference	3
BT 410 Molecular Diagnostic Techniques	4
CG 302 Cytogenetics Techniques	4
CG 401 Advanced Cytogenetics and Problem Solving	3
BT 405 Microbial Genetics	3
	17

Fifth Year – Thomas Jefferson University
GRADUATE PHASE

SUMMER	
PA 570 Pathologic Aspects of Disease	3
GC 720 Scientific Writing	2
LS 812 Practicum I *[Section 01-Research Laboratory]*	2
	7

FALL II	
LS 603 Research Design	3
BI 550 Topics in Medical Biochemistry	3
LS 801 Research Project I	1
Graduate Elective	3
LS 813 Practicum II *[Section 01-Clinical Applications]*	2
Concentration	3
	15

SPRING II	
Concentration	6
LS 802 Research Project II	2
LS 814 Practicum III *[Section 01-Research Applications]*	2
LS 815 Practicum IV *[Section 01-Forensic Applications]*	2
Graduate Elective	3
	15

Total Credits	
Total Penn State Transfer Credits	**82**
Total Thomas Jefferson University Undergraduate Phase Credits	**38**
Total Thomas Jefferson University Graduate Phase Credits	**37**
Total Credits:	**157**

Fourth Year – Thomas Jefferson University

Curriculum – MSLS (Cytogenetic Technology)

UNDERGRADUATE PHASE

FALL SEMESTER I	*Credits*
ID 310 Healthcare Informatics	3
LS 302 Introduction to Laboratory Practice	2
LS 311 Functional Histology	2
LS 301 Molecular Biology	3
BT 310 Basic Molecular Techniques	4
CG 311 Medical Genetics Laboratory	1
CG 301 Medical Genetics	3
MT 331 Immunology	3
	21

SPRING I	
ID 527 Statistics, Epidemiology and Inference	3
BT 410 Molecular Diagnostic Techniques	4
CG 302 Cytogenetics Techniques	4
CG 401 Advanced Cytogenetics and Problem Solving	3
BT 405 Microbial Genetics	3
	17

Fifth Year – Thomas Jefferson University
GRADUATE PHASE

SUMMER	
PA 570 Pathologic Aspects of Disease	3
GC 720 Scientific Writing	2
LS 812 Practicum I *[Section 02-Cytogenetics Laboratory]*	2
	7

FALL II	
LS 603 Research Design	3
BI 550 Topics in Medical Biochemistry	3
LS 801 Research Project I	1
Graduate Elective	3
LS 813 Practicum II *[Section 02-Clinical Cytogenetics I]*	2
Concentration	3
	15

SPRING II	
Concentration	6
LS 802 Research Project II	2
LS 814 Practicum III *[Section 02-Clinical Cytogenetics II]*	2
LS 815 Practicum IV *[Section 02-Clinical Cytogenetics III]*	2
Graduate Elective	3
	15

Total Credits	
Total Penn State Transfer Credits	**82**
Total Thomas Jefferson University Undergraduate Phase Credits	**38**
Total Thomas Jefferson University Graduate Phase Credits	**37**
Total Credits:	**157**

Fourth Year – Thomas Jefferson University

Curriculum – MSLS (Cytotechnology)

UNDERGRADUATE PHASE

FALL SEMESTER I	*Credits*
ID 310 Healthcare Informatics	3
LS 302 Introduction to Laboratory Practice	2
LS 311 Functional Histology	2
LS 301 Molecular Biology	3
CT 302 Cytopreparatory Techniques	1
CT 301 Principles of Cell Analysis	2
CT 311 Gynecologic Cytology and Histocorrelations	3
CT 312 Gynecologic Cytology and Histocorrelations Laboratory	4
	20

SPRING I	
ID 527 Statistics, Epidemiology and Inference	3
CT 315 Nongynecologic Cytology and Histocorrelations I	4
CT 317 Nongynecologic Cytology and Histocorrelations II	4
CT 319 Nongynecologic Cytology and Histocorrelations III	4
CT 325 Practical Cytodiagnostics	3
	18

Fifth Year – Thomas Jefferson University
GRADUATE PHASE

SUMMER	
PA 570 Pathologic Aspects of Disease	3
GC 720 Scientific Writing	2
Graduate Elective	3
	8

FALL II		
LS 603 Research Design		3
BI 550 Topics in Medical Biochemistry		3
LS 801 Research Project I		1
LS 812 Practicum I	*[Section 03-Cytopathology I]*	2
LS 813 Practicum II	*[Section 03-Cytopathology II]*	2
Concentration		3
		14

SPRING II		
Concentration		6
LS 802 Research Project II		2
LS 814 Practicum III	*[Section 03-Cytopathology III]*	2
LS 815 Practicum IV	*[Section 03-Cytopathology IV]*	2
Graduate Elective		3
		15

Total Credits	
Total Penn State Transfer Credits	**82**
Total Thomas Jefferson University Undergraduate Phase Credits	**38**
Total Thomas Jefferson University Graduate Phase Credits	**37**
Total Credits:	**157**

Fourth Year – Thomas Jefferson University

Curriculum – MSLS (Medical Technology)

UNDERGRADUATE PHASE

FALL SEMESTER I	*Credits*
ID 310 Healthcare Informatics	3
LS 302 Introduction to Laboratory Practice	2
LS 301 Molecular Biology	3
MT 302 Phlebotomy	1
MT 312 Microbiology I	3
MT 331 Immunology	3
MT 341 Hematology I	3
MT 323 Chemistry I	3
	21

SPRING I	
ID 527 Statistics, Epidemiology and Inference	3
MT 313 Microbiology II	3
MT 441 Hematology II	3
MT 324 Chemistry II	3
MT 342 Biologic Fluids	1
MT 352 Immunohematology	4
	17

Fifth Year – Thomas Jefferson University
GRADUATE PHASE

SUMMER	
PA 570 Pathologic Aspects of Disease	3
GC 720 Scientific Writing	2
Graduate Elective	3
	8

FALL II		
LS 603 Research Design		3
BI 550 Topics in Medical Biochemistry		3
LS 801 Research Project I		1
LS 812 Practicum I	*[Section 04-Microbiology]*	2
LS 813 Practicum II	*[Section 04-Clinical Chemistry]*	2
Concentration		3
		14

SPRING II		
Concentration		6
LS 802 Research Project II		2
LS 814 Practicum III	*[Section 04-Hematology]*	2
LS 815 Practicum IV	*[Section 04-Immunohematology/Immunopathology]*	2
Graduate Elective		3
		15

Total Credits	
Total Penn State Transfer Credits	**82**
Total Thomas Jefferson University Undergraduate Phase Credits	**38**
Total Thomas Jefferson University Graduate Phase Credits	**37**
Total Credits:	**157**

CONCENTRATION AREAS

Each student in the graduate phase of the MSLS program selects one of four available areas of Concentration. Concentration Areas focus on and reflect contemporary areas of clinical and research laboratory management, administration and advanced practice.

Management & Supervision	*9 credits selected from:*	cr
GC 600	Management Skills	3
GC 610	Strategic Management	3
ID 512	Healthcare Law	3
ID 513	Managing People	3
ID 514	Organization Development	3
ID 518	Health Care Issues: Quality and Cost	1
ID 525	Information Systems in Organizations	3
ID 580	Providing Community Consultation in Health Care	3
ID 589	Human Services Techniques	3
ID 627	Approaches to Management and Supervision	3
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
LS 620	Laboratory Information Systems (LIS) Management	3

Financial Management	*9 credits selected from:*	
ID 512	Healthcare Law	3
ID 518	Health Care Issues: Quality and Cost	1
ID 522	Marketing Health Care Services and Programs	3
ID 526	Accounting and Finance for Managers	3
ID 540	Launching New Ventures: An Entrepreneurial Approach	3
ID 570	Financial Management in Health Care Organizations	3
GC 650	Pharmacoeconomics	3
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
LS 620	Laboratory Information Systems (LIS) Management	3

Research Skills	*9 credits selected from:*	
ID 512	Healthcare Law	3
ID 595	Ethics and Research in the Health Professions	3
ID 660	Regulatory Issues in Scientific Research	2
GC 630	Fundamentals of Clinical Trials	3
GC 635	Fundamentals of Clinical Trial Management	2
GC 640	Research Ethics	1
GC 660	Statistical Methods for Data Analysis	2
GC 670	Experimental Design in Research	2
PR 530	Biosafety	1
LS 630	Laboratory Services Research Techniques	3

Regulatory and Quality Management	*9 credits selected from:*	
ID 512	Healthcare Law	3
ID 660	Regulatory Issues in Scientific Research	2
GC 625	Drug Development Issues	2
GC 630	Fundamentals of Clinical Trials	3
GC 635	Fundamentals of Clinical Trial Management	2
GC 640	Research Ethics	1
GC 650	Pharmacoeconomics	3
MI 580	Principles of Epidemiology	2
PR 530	Fundamentals of Biosafety	1
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
LS 620	Laboratory Information Systems (LIS) Management	3