



The University of Georgia

College of Agricultural and Environmental Sciences
Office of the Dean and Director

May 7, 2003

Dr. Arnett C. Mace, Jr.
Senior Vice President for
Academic Affairs and Provost
Administration Building
CAMPUS 30602

Dear Dr. Mace:

Please find enclosed, a proposal for a Dual Degree Agreement with the State University of West Georgia. The Agreement will facilitate the transfer of pre-engineering students from West Georgia to the University of Georgia's engineering program. Upon successful completion of an approved three-year program in pre-engineering at West Georgia, students will transfer to UGA to complete requirements for the Bachelors of Science in Agricultural Engineering or Bachelors of Science in Biological Engineering.

The State University of West Georgia currently participates in a dual degree program in engineering with both Georgia Tech and Auburn. West Georgia has expressed a strong interest in having a similar arrangement with UGA. This Agreement is endorsed by the Department of Biological and Agricultural Engineering and the College of Agricultural and Environmental Sciences.

I respectfully submit this proposal for your review, consideration and approval. Thank you for your consideration. Please contact me if you have any questions.

Sincerely,

Gale A. Buchanan
Dean and Director

attachment

cy: David Knauft
Joe Broder
Dale Threadgill
Dean Pringle
Bill Vencill

MEMORANDUM OF AGREEMENT
Between
The University of Georgia and State University of West Georgia
Dual Degree Program

State University of Georgia (SUWG) students who are enrolled in the physics or chemistry program, who wish to prepare for a career in engineering and who successfully complete an approved three-year program in a pre-engineering, may enroll in the University of Georgia's (UGA) Bachelor of Science in Agricultural Engineering (B.S.A.E.) program or UGA's Bachelor of Science in Biological Engineering (B.S.B.E.) program. Upon completion of all requirements of this dual degree program, the student will earn either a Chemistry degree or Physics degree from the State University of West Georgia and either a B.S.A.E. or B.S.B.E. degree from The University of Georgia. Completion of all requirements of this dual degree program is expected to take five academic years. The anticipated enrollment in this program is 5-10 students annually. The details of the program and the agreement are as follows:

1. During the first academic year at State University of West Georgia, the student participating in the pre-engineering program must complete the form "Intention to Pursue an Engineering Degree Program at UGA" (Attachment A) and send this form to the Head of the Biological and Agricultural Engineering Department. The Department Head at UGA will forward the name and address of the student to the Coordinator of Undergraduate Engineering Programs, who will serve as the advisor for the student until the student enrolls at UGA. Upon enrollment at UGA, the student will be reassigned an advisor based on the degree program and area of emphasis selected.
2. The BS degree programs in Physics and Chemistry at State University of West Georgia offer option plans that prepare students in general engineering studies. Based on these option plans, a three-year pre-engineering program of study for each student will be developed by the State University of West Georgia faculty in consultation with the UGA Coordinator of Undergraduate Engineering Programs. Courses used in this program include the general education courses required by either the BS degree program in physics or the BS degree program in chemistry as offered by the State University of West Georgia, and by the engineering degree programs at UGA. An outline of the semester credit hours by subject matter area, as recommended by UGA in this pre-engineering program, is appended to this agreement as Attachments B, C and D.
3. The total program of study at State University of West Georgia shall include a minimum of 70 semester hours.
4. The student will apply to the UGA Office of Admissions during the third academic year at State University of West Georgia. It is the responsibility of the student to meet all UGA deadlines. A student admitted to UGA is assured of admission into the undergraduate engineering program of his/her choice if they have
 - a. a grade no lower than "C" in each course listed in State University of West Georgia pre-engineering program,
 - b. a grade point average of 2.5 on the following State University of West Georgia pre-engineering courses (or equivalent): BIOL 1107, CHEM 1211, CHEM 1212, MATH 1634, MATH 2644, MATH 2654, MATH 3303, PHYS 2211 and PHYS 2212, and
 - c. an overall grade point average of at least 2.5/4.0.

Prior to enrollment at UGA, the student must be certified by the State University of West Georgia academic official that he/she has satisfactorily completed the academic requirements of State University of West Georgia as stated in Item 3 and Item 4. If a student does not meet these requirements, he/she can still enter one of the UGA engineering programs by applying for regular transfer admission as outlined by the current transfer student admissions standards set by the Faculty Admissions Committee of the University of Georgia.

5. Credit for courses in the approved pre-engineering program at State University of West Georgia with a grade of "C" or higher will be transferred to UGA. It shall be the joint responsibility of the designated State University of West Georgia Pre-engineering Program Director and UGA Coordinator of Undergraduate Engineering Programs to coordinate the transfer equivalency of the UGA and State University of West Georgia courses with UGA Office of Admissions.
6. State University of West Georgia will provide academic advising to assist students enrolled in the pre-engineering program with all matters related to their transfer to UGA. The UGA Coordinator of Undergraduate Engineering Programs, or duly appointed representative at UGA, will cooperate in the advising of these students. While advice and counsel will be offered, the final responsibility with regard to transfer remains with the student.
7. Pre-engineering students at State University of West Georgia will be encouraged (but not required) to attend summer school at UGA (or another engineering college) and take certain basic engineering courses (Attachment E) in order to ease the transition into engineering coursework and facilitate timely completion of the degree program.
8. A conference of the UGA Coordinator of Undergraduate Engineering Programs and State University of West Georgia pre-engineering advisors will be held regularly to review the curricula and all matters related to the engineering student transfer agreement.
9. Participating students from State University of West Georgia are eligible to seek either of the following B.S. degrees at UGA and corresponding areas of emphasis:
 - Bachelor of Science in Agricultural Engineering (B.S.A.E)
 - a) Electrical and Electronic Systems
 - b) Mechanical Systems
 - Bachelor of Science in Biological Engineering (B.S.B.E)
 - a) Environmental
 - b) Biochemical
 - c) Biomedical
10. Depending on the course of study, students completing graduation requirements of this dual degree program will be awarded one of the following degrees from State University of West Georgia :
 - Bachelor of Science in Chemistry
 - Bachelor of Science in Physics
 and one of the following degrees from The University of Georgia:
 - Bachelor of Science in Agricultural Engineering (B.S.A.E)
 - Bachelor of Science in Biological Engineering (B.S.B.E).

State University of West Georgia

University of Georgia

ATTACHMENT A

INTENTION TO PURSUE AN ENGINEERING DEGREE PROGRAM AT
THE UNIVERSITY OF GEORGIA

DATE _____
NAME _____ SS # _____
PHONE # _____
COLLEGE ADDRESS _____

HOME ADDRESS _____

EMAIL ADDRESS _____ PHONE # _____

STATE UNIVERSITY OF WEST GEORGIA

CURRICULUM _____ ADVISOR _____
GRADE POINT AVERAGE _____ PHONE # OF ADVISOR _____
DEGREE PROGRAM _____

UNIVERSITY OF GEORGIA

ANTICIPATED ENROLLMENT DATE _____

INTENDED UNDERGRADUATE ENGINEERING DEGREE PROGRAM AND AREA OF EMPHASIS

PLEASE RETURN THIS FORM TO:

Dr. E. Dale Threadgill, Head
Department of Biological & Agricultural Engineering
101 Driftmier Engineering Center
Athens, GA 30602-4435
Phone: (706) 542-1653
Email: tgill@engr.uga.edu

ATTACHMENT B
 PRE-ENGINEERING PROGRAM
 Intended Engineering Program: Bachelor of Science in Agricultural Engineering (BSAE)

Courses to be taken at State University of West Georgia

Physics Track

General University Core

(Preferred for Dual Degree)

ENGL 1101	English Composition I
ENGL 1102	English Composition II
COMM 1110	Public Speaking
XIDS 2110	Arts and Ideas: Special Topics
ENGL 2110	Literature
(or ENGL 2120 or	
ENGL 2160 or	
ENGL 2180)	

POLS 1101	American Government
HIST 2111	United States History

Mathematics

MATH 1634	Calculus I
MATH 2644	Calculus II
MATH 2654	Calculus III
MATH 3303	Differential Equations

Physics

PHYS 2211	Principles of Physics I
PHYS 2212	Principles of Physics II

Biology

BIOL 1107/L	Principles of Biology I
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Chemistry

CHEM 1211	Principles of Chemistry I
CHEM 1212	Principles of Chemistry II

Pre-Engineering

PHYS 3113	Mechanics
PHYS 3313	Electricity and Magnetism
PHYS 3012	Digital Electronics
PHYS 3212	Thermodynamics
PHYS 3424	Advanced Optics
CS 1301	Computer Science

Equivalent Courses found in the University of

Georgia BSAE Curriculum

General University Core

(Preferred for Dual Degree)

ENGL 1101	English Composition I
	English Composition II
ENGL 1102	Speech
SPCM 1100	
CMLT 2210	Literature
(or CMLT	
2220 or CMLT	
2400)	

POLS 1101	American Government
HIST 2111	American History

Mathematics

MATH 2200&L	Analytical Geometry and Calculus
MATH 2210&L	Integral Calculus
MATH 2500	Calculus III
MATH 2700	Differential Equations

Physics

PHYS 1211	Intro. to Physics for Science and Engineer I
PHYS 1212	Intro. to Physics for Science and Engineer II

Biology

BIOL 1107/L	Principles of Biology I
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Chemistry

CHEM 1211	Freshman Chemistry I
CHEM 1212	Freshman Chemistry II

Equivalent UGA Courses in Engineering

ENGR 2120	Statics
ENGR 2170	Electrical Circuits
ENGR 3270	Electronics
ENGR 3140	Thermodynamics
ENGR 4540	Applied Machine Vision
ENGR 1140	Comp. Engr. Methods

ATTACHMENT B
(CONTINUED)

Required Courses to be taken at West Georgia: PHYS 3012 Digital Electronics

Required Core Courses to be take at UGA

ENGR 1120	Engineering Graphics	ENGR 2130	Dynamics	ENGR 3150	Heat Transfer
ENGR 1920	Intro. to engineering	ENGR 2140	Strength of Materials	ENGR 4230	Sensors and Transducers
ENGR 2110	Engineering Decision Making	ENGR 3160	Fluid Mechanics	ENGR 4240	Intro. To Microcontrollers
ENGR 4920	Senior Design Project	ENGR 2920	Design Methodology		

UGA Required Courses for the BSAE Electrical/Electronic Systems Area of Emphasis

ENGR 3210	Electrical Machines and Power Distribution	ENGR 4220	Feedback Control Systems	ENGR 4940	Intro. To Systems Modeling
ENGR 4210	Linear Systems	ENGR 4250	Adv. Microcontrollers		

Plus Two Engineering Option Courses*

UGA Required Courses for the BSAE Mechanical Systems Area of Emphasis

ENGR 3300	Mechanism Design I	ENGR 4340	Machine Hydraulics	ENGR 4210	Linear Systems
ENGR 4399	Mechanism Design II	ENGR 4350	Finite Elements	ENGR 4220	Feedback Control

Plus Three Engineering Option Courses*

UGA Required Courses for the BSAE Natural Resource Management Area of Emphasis

ENGR 3120	Engineering Measurements	ENGR 3440	Water Management	ENGR 3420	Soil Mechanics
ENGR 3410	Intro. To Natur.Resource Engr.	ENGR 4420	Indust. Ventil. Design	ENGR 4480	Instr. For Envir. Quality
ENGR 4940	Intro. To Systems Modeling				

Plus Three Engineering Option Courses*

UGA Required Courses for the BSAE Process Operations Area of Emphasis

ENGR 3540	Physical Unit Operations	ENGR 4220	Feedback Control	ENGR 3210	Elect. Machine and Power Dist.
ENGR 4210	Linear Systems	ENGR 4550	Processing Plant Design	ENGR 4250	Advanced Microcontrollers
ENGR 4940	Intro. To Systems Modeling				

Plus Three Engineering Option Courses*

UGA Required Courses for the BSAE Structural Systems Area of Emphasis

ENGR 3610	Structural Design	ENGR 4610	Design of Light Steel Structure.	ENGR 3420	Soil Mechanics
ENGR 4620	Mgt. of Struc. Environ.	ENGR 4630	Design of Residential Str.	ENGR 4350	Finite Elements
ENGR 3440	Water Management				

Plus Three Engineering Option Courses*

UGA Engineering Option Courses

ENGR 3120, ENGR 3300, ENGR 3410, ENGR 3540, ENGR 3610, ENGR 4620

ATTACHMENT C
 PRE-ENGINEERING PROGRAM
 Intended Engineering Program: Bachelor of Science in Biological Engineering (BSBE)

Curriculum Courses
Can be taken at either institution

Courses to be taken at State University of West Georgia <u>Chemistry Track</u>	Equivalent Courses found in the University of Georgia <u>BSBE Curriculum</u>
General University Core <i>(Preferred for Dual Degree)</i>	General University Core <i>(Preferred for Dual Degree)</i>
ENGL 1101 English Composition I	ENGL 1101 English Composition I
ENGR 1102 English Composition II	ENGL 1102 English Composition II
ENGL 2110 Literature (or ENGL 2120 or ENGL 2160)	CMLT 2210 Literature (or CMLT 2220 or CMLT 2400)
COMM 1110 Public Speaking	SPCM 1100 Speech
POLS 1101 American Government	POLS 1101 American Government
HIST 2111 United States History	IIIST 2111 American History
Mathematics	Mathematics
MATH 1634 Calculus I	MATH 2200&L Analytical Geometry and Calculus
MATH 2644 Calculus II	MATH 2210&L Integral Calculus
MATH 2654 Calculus III	MATH 2500 Calculus III
MATH 3303 Differential Equations	MATH 2700 Differential Equations
Physics	Physics
PHYS 2211 Principles of Physics I	PHYS 1211 Intro. to Physics for Science and Engr. I
PHYS 2212 Principles of Physics II	PHYS 1212 Intro. to Physics for Science and Engr. II
Chemistry	Chemistry
CHEM 1211 Principles of Chemistry I	CHEM 1211/L Freshman Chemistry I
CHEM 1212 General Chemistry II	CIEM 1212/L Freshman Chemistry II
CHEM 2411 Organic Chemistry I	CIEM 2211 Organic Chemistry I
CHEM 2422 Organic Chemistry II	CHEM 2212 Organic Chemistry II
CIEM 2422 Biochemistry I	CIEM 3100 Biochemistry
CHEM 4711	
Biology	Biology
BIOL 1107/L Principles of General Biology I	BIOL 1107/L Principles of Biology I
BIOL 1108/L Principles of General Biology II	BIOL 1108/L Principles of Biology II
Pre-Engineering	Equivalent UGA Courses in Engineering
CHEM 3522 Physical Chemistry II	ENGR 3140 Thermodynamics

ATTACHMENT C
(Continued)

Required Courses to be take at UGA
MIBO 3000 - Microbiology

ENGR 1120	Engineering Graphics	ENGR 3160	Fluid Mechanics	ENGR 3760 ^b	Biomechanics
ENGR 1920	Intro. To engineering	ENGR 3520	Mass Transfer and Rate Phen.	ENGR 4740 ^b	Biomaterials
ENGR 2110	Engineering Decision Making	ENGR 4920	Senior Design Project	ENGR 3410 ^c	Intro. To Natural Resource Engr.
ENGR 2120	Statics	ENGR 4510 ^a	Biochemical Engineering	ENGR 3440 ^c	Water Management
ENGR 2140	Strength of Materials	ENGR 4520 ^a	Design of Biochem. Separations	ENGR 4440 ^c	Environmental Engr. I
ENGR 2920	Design Methodology	ENGR 4230 ^{ab}	Sensors and Transducers	ENGR 4450 ^c	Environmental Engr. II
ENGR 3150	Heat Transfer	ENGR 3720 ^b	Engineering Physiology	ENGR 4480 ^{ac}	Instr. For Environmental Quality

Elective Courses to be take at UGA

ENGR 4940 ^{ac}	Intro. to Systems Modeling	ENGR 4220 ^b	FeedBack Control	ENGR 4480 ^b	Instr. For Environmental Quality
ENGR 3540 ^a	Physical Unit Operations	ENGR 4350 ^b	Finite Elements	ENGR 3420 ^c	Soil Mechanics

^a Course for students in the Biochemical Area of Emphasis

^b Course for students in the Biomedical Area of Emphasis (may take more than 2 years in residence at UGA)

^c Course for students in the Environmental Area of Emphasis (may take more than 2 years in residence at UGA)

ATTACHMENT D
PRE-ENGINEERING PROGRAM
EXAMPLE of Course of Study

Courses to be taken at State University of West Georgia

<u>Physics Track</u>		<u>Chemistry Track</u>	
ENGL 1101	English Composition I	ENGL 1101	English Composition I
ENGR 1102	English Composition II	ENGR 1102	English Composition II
COMM 1110	Public Speaking	COMM 1110	Public Speaking
ENGL 2110	Literature Requirement of	ENGL 2110	Literature Requirement of
(or ENGL 2120 or	the UGA engineering	(or ENGL 2120 or	the UGA engineering
ENGL 2160 or ENGL	programs	ENGL 2160 or ENGL	programs
2180 or ENGL 2190)		2180 or ENGL 2190)	
POLS 1101	American Government	POLS 1101	American Government
HIST 2111	United States History	HIST 2111	United States History
Mathematics		Mathematics	
MATH 1634	Calculus I	MATH 1634	Calculus I
MATH 2644	Calculus II	MATH 2644	Calculus II
MATH 2654	Calculus III	MATH 2654	Calculus III
MATH 3303	Differential Equations	MATH 3303	Differential Equations
Physics		Physics	
PHYS 2211	Principles of Physics I	PHYS 2211	Principles of Physics I
PHYS 2212	Principles of Physics II	PHYS 2212	Principles of Physics II
Chemistry		Chemistry	
CHEM 1211K	Principles of Chemistry I	CHEM 1211K	Principles of Chemistry I
CHEM 1212K	General Chemistry II	CHEM 1212K	General Chemistry II
Biology		CHEM 2411	Organic Chemistry I
BIOL 1107/L	Principles of Biology I	CHEM 4711	Biochemistry I
Pre-engineering Courses		Biology	
PHYS 3113	Mechanics	BIOL 1107/L	Principles of Biology I
PHYS 3313	Electricity and Magnetism	BIOL 1108/L	Principles of Biology II
PHYS 3212	Thermodynamics	Pre-engineering Courses	
CS 1301	Computer Science	CHEM 3522	Physical Chemistry II
PHYS 3013	Basic Electronics	CHEM 2422	Organic Chemistry II
PHYS 3424	Advanced Optics		

ATTACHMENT D
(Continued)

Physics Track

Bachelor of Science Agricultural Engineering:
Electrical/Electronics Systems Area of Emphasis

Chemistry Track

Bachelor of Science Biological Engineering
Biochemistry Area of Emphasis

Fall Semester			Summer Semester		
<u>Course</u>		<u>Hours</u>	<u>Course</u>		<u>Hours</u>
ENGR 1120	Engr. Graphics	2	ENGR 1120	Engineering Graphics	2
ENGR 1920	Intro. To Engineering	1	ENGR 2120	Statics	<u>3</u>
ENGR 2130	Dynamics	3			5
ENGR 3150	Heat Transfer	3	Fall Semester		
ENGR 3160	Fluid Mech.	3	<u>Course</u>		<u>Hours</u>
ENGR 4230	Sensors and Transducers	<u>3</u>	ENGR 1140	Comput. Engr. Methods	2
		15	ENGR 1920	Intro. To Engr.	1
Spring Semester			ENGR 3150	Heat Transfer	3
<u>Course</u>		<u>Hrs</u>	ENGR 3160	Fluid Mechanics	3
ENGR 2920	Design Method	2	ENGR 3520	Mass Trans. And Rate Phen.	3
ENGR 4240	Intro. To Microcontrollers	3	MIBO	Microbiology	<u>3</u>
ENGR 3540	Physical Units Op.	3			15
ENGR 2110	Engr. Decision Making	3	Spring Semester		
ENGR 2140	Strength of Materials	<u>3</u>	<u>Course</u>		<u>Hours</u>
		14	ENGR 2140	Str. Of materials	3
Fall Semester			ENGR 2170	Elect. Circuits	3
<u>Course</u>		<u>Hrs</u>	ENGR 2920	Design Method	2
ENGR 4210	Linear System	3	ENGR 4420	Industrial Vent. And Control	3
ENGR 4250	Adv. Micro.	3	ENGR 4510	Biochemical Engineering	<u>3</u>
ENGR 3300	Machine I	3			14
ENGR 3410	Intro. To Natural Resource Engineering	3	Fall Semester		
ENGR 3610	Structural Design	<u>3</u>	<u>Course</u>		<u>Hours</u>
		15	ENGR 4230	Sensors and Transducers	3
Spring Semester			ENGR 4520	Engineering and Design of Biological Processes II	3
<u>Course</u>		<u>Hrs</u>	ENGR 2110	Engineering Decision Making	3
ENGR 4220	Feedback Control	3	ENGR 4480	Instrumentation for Envr. Quality	3
ENGR 4920	Senior Design	4	Social Science		<u>3</u>
ENGR 3210	Electrical Motors and Power Distribution	3			15
Social Science		3	Spring Semester		
Social Science		<u>3</u>	<u>Course</u>		<u>Hours</u>
		16	ENGR 3540	Physical Unit Operation	3
			ENGR 4920	Engineering Project	4
			Social Science		3
			Social Science		<u>3</u>
					13

ATTACHMENT E

Engineering courses suggested to be taken during summer term prior to first Fall Semester at UGA

ENGR 1120 Engineering Graphics
ENGR 3160 Fluid Mechanics

ENGR 2110 Statics
ENGR 3150 Heat Transfer

ENGR 2170 Electrical Circuits