RECEIVED OCT 15 2007

Biotechnology

APPROVED MAR 12 2008

- New course: 1322
  - BTEC ~~2322~~ - Replaces BCHS 4317 on degree plan

Proposed Fall 2008 degree plan reflects the following change:

1. Change from BCHS 4317 Principles of Biotechnology to BTEC ~~2322~~ 1322 ~~same course title.~~ Introduction to Biotechnology

[redacted]

4/5/07

Proposed Catalog Description for new program in Biotechnology

Biotechnology (BTEC)

The Bachelor of Science Program in Biotechnology is intended to provide students with strong core science concepts and an application -oriented undergraduate education. Strongly interdisciplinary, this innovative program draws faculty and courses from the College of Technology and the College of Natural Science and Math. The program's objective is to prepare students for employment opportunities in the critically important and dynamic biotechnology industry. In addition, the curriculum will provide students with knowledge and core set of skills that span across basic sciences, technology, engineering, and mathematics (STEM) education. With an emphasis on environmental biotechnology, this is the first program in the state of Texas that integrates bioprocessing, nanobiotechnology, bioinformatics and environmental biotechnology into the undergraduate curriculum.

The program recognizes the need for cross-disciplinary training and fosters collaborative interactions that will strengthen undergraduate education.

The program is specifically designed to:

- Develop adaptable students with a strong foundation in skills that are relevant to the changing world of biotechnology.
- Provide students with practical training in the skills and techniques of biotechnology.
- Integrate the laboratory and lecture components of the program through the use of an experimental approach to learning.
- Uniquely combine practical, hands-on biotechnology training with cutting-edge biotechnology research and teaching.

Two curriculum tracks:1) Bioprocessing, and 2) Bioinformatics give students the flexibility to tailor their degree based on their interest, educational background and career goals. These tracks, in combination with core courses, will provide our students with a broad exposure to the field of biotechnology. The presence of the Texas Medical Center in the greater Houston area and a growing biotechnology and pharmaceutical industry, places this program at the forefront of Biotechnology Education.

University Core Curriculum
42 semester hours

Communication (6 semester hours)
ENGL 1303. English Composition I
ENGL 1304. English Composition II

Writing in the Disciplines: (3 semester hours)
See individualized plans

History (6 semester hours)
HIST 1377, 1378

American Government (6 semester hours)
POLS 1336, 1337

Social and Behavioral Sciences (3 semester hours)
Three semester hours selected from
core approved list

Humanities (3 semester hours)
See individualized plans

Visual/Performing Arts (3 semester hours)
Three semester hours selected from
core approved list

Mathematics (6 semester hours)
See individualized plans

Natural Sciences (6 semester hours)
See individualized plans

Major Requirements - Biotechnology (BTEC)

BCHS 3304, 3201. General Biochemistry I, Laboratory
BIOL 1362, 1162. Introduction to Biological Science, Laboratory
BIOL 2333, 2133. Elementary Microbiology, Laboratory
BIOL 3301. Genetics
BIOL 4320. Molecular Biology
BTEC 2320. Biotechnology Regulatory Environment
BTEC 2321. Good Manufacturing Practices
BTEC ~~2322. Principles of Biotechnology~~ & 1322 Introduction to Biotechnology
BTEC 3100. Instrumentation and Measurement Laboratory
BTEC 3301. Principles of Genomics/Proteomics and Bioinformatics
BTEC 4350. Biotechnology Capstone Experience
CHEM 1332, 1112. Fundamentals of Chemistry, Laboratory
CHEM 3331, 3321. Fundamentals of Organic Chemistry, Laboratory
Choose either the Biomanufacturing Track or the Bioinfomatics Track.

Biomanufacturing Track (13 SH Minimum)

BIOL 4319. Microbial Genetics
BTEC 3320. Introduction to Quality Control/Quality Assurance
BTEC 4101. Principles of Bioprocessing Laboratory

BTEC 4301. Principles of Bioprocessing
Approved Elective (3 SH)

Bioinformatics Track (12 SH Minimum)

BTEC 4300. Principles of Bioinformatics
ITEC 3343. Information Systems Analysis and Design
ITEC 3365. Database Management
Approved Elective (3 SH) (See list of approved electives)
Approved electives: BCHS 4306, BIOL 4323, BIOL 4374, TELS 4350

College and Department Requirements (19 SH)

ELET 2300. Introduction to C ++ Language Programming
ITEC 2334. Information Systems applications
PHIL 3354. Medical Ethics
TELS 3340. Organizational Leadership and Supervision
or
HDCS 3300. Organizational Decisions in Technology
TELS 3363. Technical Communications
PHYS 1301, 1101. Introductory General Physics I, Laboratory

Program Requirements

Mathematics (10 semester hours which includes University Core and Bachelor of Science Requirements)

Students are required to have credit for College Algebra through the Math Placement Exam, CLEP, or completion of course.

MATH 1330. Precalculus
MATH 1431. Calculus I
TMTH 3360. Applied Technical Statistics or PSYC 330. Introduction to Psychological Statistics

Writing in the Disciplines (3 SH)

COMM 1302. Introduction to Communication Theory, preferred

Natural Sciences (8 semester hours which includes university core)

BIOL 1361, 1161. Introduction to Biological Science, Laboratory
CHEM 1331, 1111. Fundamentals of Chemistry, Laboratory

Humanities

PHIL 1305. Ethics

Degree awarded: Bachelor of Science
Major: Biotechnology

BIOTECHNOLOGY (BTEC)

UNIVERSITY OF HOUSTON
COLLEGE OF TECHNOLOGY

ENGINEERING TECHNOL
BACHELOR OF SCIENCE

NAME_____ UHID_____

UNIVERSITY CORE REQUIREMENTS (42 SH)

	GR	SH	AH
Communication (6 SH)			
ENGL 1303 English Composition I	___	___	___
ENGL 1304 English Composition II	___	___	___
Writing in the Discipline (3SH)*			
COMM 1302 Intro To Communication Theory (preferred)	___	___	___
History/Government (12 SH)			
HIST 1377 US History to 1867	___	___	___
HIST 1379 US History since 1867	___	___	___
POLS 1336 US & TX Const/Politics	___	___	___
POLS 1337 US Government	___	___	___
Humanities* (3 SH)			
PHIL 1305 Ethics	___	___	___
Visual/Performing Arts* (3 SH)			
_____	___	___	___
Social/Behavioral Sciences (3 SH)			
_____	___	___	___
Math/ Math Reasoning (10 SH)**			
MATH 1330 Precalculus	___	___	___
MATH 1431 Calculus I	___	___	___
TMTH 3360 Applied Tech Statistics or PSYC 3301	___	___	___

** Students are required to have credit for College Algebra through the Math Placement Exam, CLEP or completion of the course.

Natural Sciences* (8 SH)			
BIOL 1361/1161 Intro to Biological Science	___	___	___
CHEM 1331/1111 Fund of Chem & Lab	___	___	___

COLLEGE AND DEPARTMENT REQUIREMENTS (19 SH)

PHYS 1301/1121 Intro to General Phy & Lab	___	___	___
ELET 2300 Intro to C++ programming	___	___	___
ITEC 2334 Information Systems Apps	___	___	___
PHIL 3354 Medical Ethics	___	___	___
TELS 3340 Org Leadership & Suprv or HDCS 3300 Org Decisions in Tech	___	___	___
TELS 3363 Technical Communication	___	___	___

*Refer to class schedule for lists of courses which satisfy University requirements.

36 advanced (3000- or 4000-level) semester hours must be completed.

Total hours required: 123-124 semester hours

Texas Success Initiative requirements must be met.

MAJOR CORE REQUIREMENTS (44 SH)

	GR	SH	AH
BIOL 1362/1162 Intro to Biological Sci	___	___	___
CHEM 1332/1112 Fund of Chem & Lab	___	___	___
BIOL 2333/2133 Elem Microbio & Lab	___	___	___
BTEC 2320 Biotechnology Regu Env	___	___	___
BTEC 2321 Good Manufacturing Practices	___	___	___
BTEC ~~2322 Principles of Biotechnology~~ 3	___	___	___
BCHS 3304/3201 Gen Biochemistry & Lab	___	___	___
BIOL 3301 Genetics	___	___	___
BTEC 3100 Instrum & Msremnt BTEC Lab	___	___	___
BTEC 3301 Prin Bioinform/Geon/Proteom	___	___	___
CHEM 3221 Organic Chemistry Lab	___	___	___
CHEM 3331 Fund of Organic Chemistry	___	___	___
BIOL 4320 Molecular Biology	___	___	___
BTEC 4350 Capstone Experience	___	___	___

Choose either the Biomanufacturing or Bioinformatics Track.

Biomanufacturing Track (13 SH Minimum)			
BTEC 3320 Intro QA/QC Drugs & Biologics	___	___	___
BIOL 4319 Microbial Genetics	___	___	___
BTEC 4301 Principles of Bioprocessing	___	___	___
BTEC 4101 Principles of Bioprocessing Lab	___	___	___
**Approved Elective(3SH)_____	___	___	___
Bioinformatics Track (12 SH Minimum)			
ITEC 3343 System Analysis & Design	___	___	___
ITEC 3365 Database Design	___	___	___
BTEC 4300 Prin of Bioinformatics	___	___	___
**Approved Elective (3SH)_____	___	___	___

****Electives to be chosen from approved list.**

Approved Electives:
BCHS 4306 Nucleic Acid
BIOL 4323 Immunology
BIOL 4374 Cell Biology
TELS 4350 Industrial & Environmental Safety

For graduation with Honors, see Undergraduate Catalog.

APPROVALS:

_____
Student Signature Date

_____
Advisor Date

_____
Department Chair Date

NAME_____ UHID_____

UNIVERSITY CORE REQUIREMENTS (42 SH)

	GR	SH	AH
Communication (6 SH)			
ENGL 1303 English Composition I	___	___	___
ENGL 1304 English Composition II	___	___	___
History/Government (12 SH)			
HIST 1377 US History to 1867	___	___	___
HIST 1379 US History since 1867	___	___	___
POLS 1336 US & TX Const/Politics	___	___	___
POLS 1337 US Government	___	___	___
Humanities* (3 SH)			
Phil 1305 Ethics	___	___	___
Visual/Performing Arts* (3 SH)			
_____	___	___	___
Social/Behavioral Science* (3 SH)			
_____	___	___	___
Social/Behavioral Science, Writing Intensive* (3 SH)			
COMM 1302 (preferred)	___	___	___
Math Reasoning (9 SH)**			
MATH 1330 Precalculus	___	___	___
MATH 1431 Elements of Calculus	___	___	___
TMTH 3360 Applied Tech Statistics or PSYC 3301	___	___	___

** Students are required to have credit for College Algebra through the Math Placement Exam, CLEP or completion of the course.

Natural Sciences* (12 SH)			
BIOL 1361/1161 Intro to Biological Science	___	___	___
CHEM 1331/1111 Fund of Chem & Lab	___	___	___
PHYS 1301/1121 Intro to General Phy & Lab	___	___	___

COLLEGE AND DEPARTMENT REQUIREMENTS (25 SH)

ELET 2300 Intro to C++ programming	___	___	___
ITEC 2334 Information Systems Apps	___	___	___
PHIL 3354 Medical Ethics	___	___	___
TELS 3340 Org Leadership & Suprv or HDCS 3300 Org Decisions in Tech	___	___	___
TELS 3363 Technical Communication	___	___	___

*Refer to class schedule for lists of courses which satisfy University requirements.

36 advanced (3000- or 4000-level) semester hours must be completed.

Total hours required: 122-123 semester hours

Texas Success Initiative requirements must be met.

MAJOR CORE REQUIREMENTS (42 SH)

	GR	SH	AH
BIOL 1362/1162 Intro to Biological Science	___	___	___
CHEM 1332/1112 Fund of Chem & Lab	___	___	___
BIOL 2333/2133 Elem Microbiology & lab	___	___	___
BTEC 2320 Biotechnology Regulatory Env	___	___	___
BTEC 2321 Good Manufacturing Practices	___	___	___
BCHS 3304/3201 Gen Biochemistry & Lab	___	___	___
BIOL 3301 Genetics	___	___	___
BTEC 3100 Instrum & Msremnt BTEC Lab	___	___	___
BTEC 3301 Prin of Bioinform/Geon/Proteom	___	___	___
CHEM 3221 Organic Chemistry Lab	___	___	___
CHEM 3331 Fund of Organic Chemistry	___	___	___
BCHS 4317 Principles of Biotechnology	___	___	___
BIOL 4320 Molecular Biology	___	___	___
BTEC 4350 Capstone Experience	___	___	___

Choose either the Biomanufacturing or Bioinformatics Track.

Biomanufacturing Track (13 SH Minimum)			
BTEC 3320 Intro QA/QC Drugs & Biologics	___	___	___
BIOL 4319 Microbial Genetics	___	___	___
BTEC 4301 Principles of Bioprocessing	___	___	___
BTEC 4101 Principles of Bioprocessing Lab	___	___	___
**Approved Elective(3SH)_____	___	___	___
Bioinformatics Track (12 SH Minimum)			
ITEC 3343 System Analysis & Design	___	___	___
ITEC 3365 Database Design	___	___	___
BTEC 4300 Prin of Bioinformatics	___	___	___
**Approved Elective (3SH)_____	___	___	___

****Electives to be chosen from approved list.**

Approved Electives:
BCHS 4306 Nucleic Acid
BIOL 4323 Immunology
BIOL 4374 Cell Biology
TELS 4350 Industrial & Environmental Safety

For graduation with Honors, see Undergraduate Catalog.

APPROVALS:

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Student Signature Date

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Advisor Date

_____
Department Chair Date