

Directions: An institution shall use this form to propose a new bachelor's or master's degree program. In completing the form, the institution should refer to the document *Standards for Bachelor's and Master's Programs*, which prescribes specific requirements for new degree programs. Note: This form requires signatures of (1) the Chief Executive Officer, certifying adequacy of funding for the new program; (2) a member of the Board of Regents (or designee), certifying Board approval, and (3) if applicable, a member of the Board of Regents or (designee), certifying that criteria have been met for staff-level approval. Note: An institution which does not have preliminary authority for the proposed program shall submit a separate request for preliminary authority. That request shall address criteria set in Coordinating Board rules Section 5.24 (a).

Information: Contact the Division of Academic Affairs and Research at 512/427-6200 for more information.

APPROVED JAN 24 2007

RECEIVED OCT 13 2006

Administrative Information

EFFECTIVE FALL 2007

1. Institution: University of Houston

NEWS CB APPROVAL

2. Program Name – Show how the program would appear on the Coordinating Board's program inventory (e.g., *Bachelor of Business Administration degree with a major in Accounting*): Bachelor of Science with a major in Biotechnology

3. Proposed CIP Code: 261201002

4. Brief Program Description – Describe the program and the educational objectives:

The Bachelor of Science in Biotechnology is a initiative of the University of Houston's College of Technology (CoT) in collaboration with the College of Natural Science and Math (NSM). This unique Bachelor of Science program combines the extensive training in science theory available at NSM with the hands on training experience from the newly proposed Biotechnology curriculum at the College of Technology The program is intended to produce students with strong scientific and technical backgrounds

The program addresses the documented need for people who can combine technical experience and training with expertise in other areas such as, production, regulations, compliance, and the like. In addition, the new curriculum will provide students with knowledge and core set of skills that span across basic sciences, technology, engineering, and mathematics (STEM) education to increase their understanding of STEM principles and prepare them for employment in the rapidly changing biotech industry.

The program recognizes the need for cross-discipline 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.

5. Administrative Unit – Identify where the program would fit within the organizational

structure of the university (e.g., *The Department of Electrical Engineering within the College of Engineering*): The Department of Engineering Technology within the College of Technology

6. Proposed Implementation Date – Report the first semester and year that students would enter the program: Fall 2007

7. Contact Person – Provide contact information for the person who can answer specific questions about the program:

Name: Rupa Iyer, Ph.D.

Title: Research Associate Professor and Director, Biotechnology Programs

E-mail: riyer@uh.edu

Phone: (713) 743-4076, (281) 923 -1528

Program Information
(see attached)

I. Need

Note: Complete I.A and I.B only if preliminary authority for the program was granted more than four years ago. This includes programs for which the institution was granted broad preliminary authority for the discipline.

A. Job Market Need – Provide short- and long-term evidence of the need for graduates in the job market.

There are currently 42 biotechnology companies in the greater Houston area, these biotech companies along with the 42 institutions in the Texas Medical Center and UTMB are potential employers of our graduates. Please see attached document for a detailed list of biotech companies.

B. Student Demand – Provide short- and long-term evidence of demand for the program.

A recent survey conducted by the biology department showed 38 undergraduate students were interested in pursuing a undergraduate degree in Biotechnology

C. Enrollment Projections – Use this table to show the estimated cumulative headcount and full-time student equivalent (FTSE) enrollment for the first five years of the program. (Include majors only and consider attrition and graduation.)

YEAR	1	2	3	4	5

Headcount	15	16	18	20	91
FTSE	25	55	89	127	144

II. Quality

- A. Degree Requirements – Use this table to show the degree requirements of the program. (*Modify the table as needed; if necessary, replicate the table for more than one option.*)

Category	Semester Credit Hours	Clock Hours
General Education Core Curriculum (<i>bachelor's degree only</i>)	42	
Required Courses	69	
Prescribed Electives	12-13	
Free Electives	0	
Other (<i>Specify, e.g., internships, clinical work</i>)	(if not included above)	
TOTAL	123-124	

- B. Curriculum – Use these tables to identify the required courses and prescribed electives of the program. Note with an asterisk (*) courses that would be added if the program is approved. (*Add and delete rows as needed. If applicable, replicate the tables for different tracks/options.*)

Prefix and Number	Required Courses	SCH
ENGL 1303	English Composition I	3
ENGL 1304	English Composition II	3
HIST 1377	US History to 1876	3
HIST 1378	US History Since 1876	3
POLS 1336	US and Texas Constitution and Politics	3
POLS 1337	US Government	3
PHIL 1305	Ethics	3
Visual/Performing Arts	From Core approved list	3
Social Sciences	From core approved list	3
BIOL 1361, 1362, 1111, 1112	Introduction to Biological Science, Laboratory	8
BIOL 2333, 2133	Elementary Microbiology, Laboratory	4
BIOL 3301	Genetics	3
BIOL 4320	Molecular Biology	3

CHEM 1331, 1332, 1111, 1112	Fundamentals of Chemistry, Laboratory	8
CHEM 3331,3221	Fundamentals of Organic Chemistry, Laboratory	5
BCHS 3304, 3201	General Biochemistry I, Laboratory	5
BCHS 4317	Principles of Biotechnology	3
PHYS 1301, 1101	Introductory Physics I, Laboratory	4
COMM 1302	Introduction to Communication Theory	3
ELET 2300	Introduction to C++ Programming	3
ITEC 2334	Information Systems Applications	3
PHIL 3354	Medical Ethics	3
TELS 3340 or HDCS 3300	Organizational Leadership and Supervision or Organizational Decisions in Technology	3
TELS 3363	Technical Communications	3
MATH 1330	Precalculus	3
MATH 1431	Calculus I	4
TMTH 3360 or PSYC 3301	Applied Technical Statistics or Introduction to Psychological Statistics	3
*BTEC 2320	Biotechnology Regulatory Environment	3
*BTEC 2321	Good Manufacturing Practices	3
*BTEC 3100	Instrumentation and Measurement Laboratory	1
*BTEC 3301	Principles of Genomics/Proteomics and Bioinformatics	3
*BTEC 4350	Biotechnology Capstone Experience	3

Prefix and Number	Prescribed Elective Courses	SCH
*BTEC 3320	Introduction to Quality Control/Quality Assurance	3
*BTEC 4300	Principles of Bioinformatics	3
*BTEC 4301	Principles of Bioprocessing	3
*BTEC 4101	Principles of Bioprocessing Laboratory	1
BIOL 4319	Microbial Genetics	3
ITEC 3343	Information Systems Analyses and Design	3
ITEC 3365	Database Management	3
BCHS 4306	Nucleic Acid	3
BIOL 4323	Immunology	3
BIOL 4374	Cell Biology	3
TELS 4350	Industrial and Environmental Safety	3

- C. Faculty – Use these tables to provide information about Core and Support faculty. Add an asterisk (*) before the name of the individual who will have

direct administrative responsibilities for the program. *(Add and delete rows as needed.)*

Name of <u>Core</u> Faculty and Faculty Rank	Highest Degree and Awarding Institution	Courses Assigned in Program	% Time Assigned To Program
e.g. Robertson, David Asst. Professor	PhD. in Molecular Genetics Univ. of Texas at Dallas	MG200, MG285, MG824 (Lab Only)	50%
Iyer, Rupa Res. Asso. Professor	Ph. D. in Microbial Genetics Michigan State University	To be determined	100%
Baca, Christopher Res. Asso. Professor	MAOM University of Phoenix	To be determined	100%
New Faculty in Year			
New Faculty in Year			

Name of <u>Support</u> Faculty and Faculty Rank	Highest Degree and Awarding Institution	Courses Assigned in Program	% Time Assigned To Program
New Faculty in 2007		To be determined	50%
New Faculty in Year 2007		To be determined	50%

- D. Library – Provide the library director's assessment of library resources necessary for the program. Describe plans to build the library holdings to support the program.

Books

UH Main Campus- 1923
UH, UHCL- 2185

Journals (current subscriptions)

UH Main Campus -25

Subscriptions to the 20 journals with the highest impact factors in biotechnology- 5

Many other medical journals can be accessed through our participation in the Houston Area Medical Center

Databases/indexes

UH Main Campus

GWLA Biological Engineering Gateway

NTIS Database

Pubmed/Medline

Applied Science and Technology

Compendex

+Several biology, chemistry, engineering and general science databases

- E. Facilities and Equipment – Describe the availability and adequacy of facilities and equipment to support the program. Describe plans for facility and equipment improvements/additions.

A recently awarded \$1M grant by the Texas Workforce Commission will provide seed funding for new program development, equipment and supplies for the new proposed biotechnology laboratories, and salaries for Dr. Iyer, Mr. Baca, Dr. Kurdle and Dr. Heidar. Funding from this grant will also enable to us to sustain Web portal development of the CLiST outreach activities to area high schools to begin the pipeline of biotech education. Additional funding of 500K will be provided by the CoT for facilities.

Both CoT and NSM will provide space for instructional activities, additional faculty salaries will be covered by CoT. Introgen Therapeutics, a local biotech company recently donated a bioreactor that will be used in outreach activities and as demonstration for mammalian cell growth in the biotechnology laboratory. Once program implementation begins, revenues generated from student fees will contribute to program sustenance.

- F. Accreditation – If the discipline has a national accrediting body, describe plans to obtain accreditation or provide a rationale for not pursuing accreditation. At this time there is no accreditation available for the program, however when such a need arises, we will apply for accreditation.

III. Costs and Funding

Five-Year Costs and Funding Sources - Use this table to show five-year costs and sources of funding for the program.

Five-Year Costs		Five-Year Funding	
Personnel ¹	\$1,887,342	Reallocated Funds	285000

Facilities and Equipment	\$1, 050,00	Anticipated New Formula Funding ³	\$232,332
Library, Supplies, and Materials	\$728,00	Special Item Funding	3,000,000
Other ²	\$602,500	Other ⁴	750,510
Total Costs	\$4,267,842	Total Funding	\$4,267,842

1. Report costs for new faculty hires, graduate assistants, and technical support personnel. For new faculty, prorate individual salaries as a percentage of the time assigned to the program. If existing faculty will contribute to program, include costs necessary to maintain existing programs (e.g., cost of adjunct to cover courses previously taught by faculty who would teach in new program).
2. Specify other costs here (e.g., administrative costs, travel).
3. Indicate formula funding for students new to the institution because of the program; formula funding should be included only for years three through five of the program and should reflect enrollment projections for years three through five.
4. Report other sources of funding here. In-hand grants, "likely" future grants, and designated tuition and fees can be included.

Signature Page

1. Adequacy of Funding – The chief executive officer shall sign the following statement:

I certify that the institution has adequate funds to cover the costs of the new program. Furthermore, the new program will not reduce the effectiveness or quality of existing programs at the institution.

Chief Executive Officer

Date

2. Board of Regents or Designee Approval – A member of the Board of Regents or designee shall sign the following statement:

On behalf of the Board of Regents, I approve the program.

Board of Regents (Designee)

Date of Approval

3. Board of Regents Certification of Criteria for Commissioner of Assistant Commissioner Approval – For a program to be approved by the Commissioner or the Assistant Commissioner for Academic Affairs and Research, the Board of Regents or designee must certify that the new program meets the eight criteria under TAC Section 5.50 (b): The criteria stipulate that the program shall:

- (1) be within the institution's current Table of Programs;
- (2) have a curriculum, faculty, resources, support services, and other components of a degree program that are comparable to those of high quality programs in the same or similar disciplines at other institutions;
- (3) have sufficient clinical or in-service sites, if applicable, to support the program;
- (4) be consistent with the standards of the Commission of Colleges of the Southern

Association of Colleges and Schools and, if applicable, with the standards or discipline-specific accrediting agencies and licensing agencies;

- (5) attract students on a long-term basis and produce graduates who would have opportunities for employment; or the program is appropriate for the development of a well-rounded array of basic baccalaureate degree programs at the institution;
- (6) not unnecessarily duplicate existing programs at other institutions;
- (7) not be dependent on future Special Item funding
- (8) have new five-year costs that would not exceed \$2 million.

On behalf of the Board of Regents, I certify that the new program meets the criteria specified under TAC Section 5.50 (b).

Board of Regents (Designee)

Date



TEXAS HIGHER EDUCATION COORDINATING BOARD

Academic Affairs and Research

P.O. Box 12788 Austin, Texas 78711 • 1200 East Anderson Lane 78752

Add new circle
BIOTECHBS

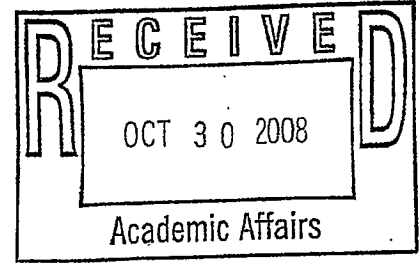
MacGregor M. Stephenson, J.D., Ph.D.
Assistant Commissioner
Academic Affairs and Research
macgregor.stephenson@thehb.state.tx.us

October 27, 2008

RECEIVED NOV 17 2008

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Interim Sr. VP for Academic Affairs
and Provost
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512/ 427-6200
Fax 512/ 427-6168

Dear Dr. Strickland:

Web site:
<http://www.thehb.state.tx.us>

This is to confirm that at its October 23, 2008 meeting, the Coordinating Board approved and authorized the request from the University of Houston to create a Bachelor of Science degree in Biotechnology.

The bachelor program as approved requires 126 to 127 semester credit hours to complete. Please note that the 79th Texas Legislature (Regular Session, TEC 61.0515, <<http://tlo2.tlc.state.tx.us/statutes/ed.toc.htm>>) enacted a limitation of semester credit hours based on the minimum number of semester credit hours required for the degree (120 hours) by the Southern Association of Colleges and Schools (SACS). The Legislation requires your institution to consider and document a "compelling academic reason" for any bachelor's programs that exceed the minimum number of hours required by SACS. Failure to consider the degree plan in light of TEC 61.0515 would result in your institution's non-compliance with the statute.

Enclosed is an information sheet for your reporting official. Best wishes for success with this new program.

Sincerely,

MacGregor M. Stephenson

Enclosure

c: Renu Khator
David P. Bell

INFORMATION SHEET

The following information is provided in connection with recent action taken by the Texas Higher Education Coordinating Board and reported to your institution in a letter from MacGregor M. Stephenson dated October 27, 2008.

ACTION: UNIVERSITY OF HOUSTON

On October 23, 2008 the Coordinating Board approved and authorized the request from the University of Houston to create a Bachelor of Science degree in Biotechnology.

Administrative Unit Affected:	Academic Unit #	Action	Effective Date
Department of Engineering Technology	0980	Create new degree program	October 23, 2008
Degree Programs Affected:	CIP Code	Action	Effective Date
BS degree with a major in Biotechnology	26.1201.00	Create degree program	October 23, 2008

Notes:

These changes will affect the way your institution reports courses, programs, and degrees to the Coordinating Board. Please inform the appropriate reporting personnel of these changes.

If you have any questions about this action or about your institution's program inventory, please contact:

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Academic Affairs and Research Division
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