



Overview and Summary of Recent Initiatives

The State of Louisiana adopted a strategic plan, Vision 2020, in 2000, which it has continued to implement. The strategy has three goals, one of which is to build an economy driven by a diverse set of technology industries. The life sciences/biotechnology/biomedical industry is one of the sectors that the state has targeted for investment.

In the past several years, the state has continued to support efforts to develop bioscience clusters in New Orleans, Shreveport, and Baton Rouge.

- In 2005, the Louisiana Legislature enacted and the Governor signed a bill creating the **Greater New Orleans Biosciences Economic Development District**. The district, which is designed to create a geographic concentration of academic and private bioscience research and commercialization, includes the Louisiana State University (LSU) Health Sciences Center, Tulane Health Sciences Center, the Louisiana Cancer Research Consortium (LCRC), the Louisiana Gene Therapy Research Consortium, Delgado School of Nursing, the Veterans Affairs Medical Center, Charity Hospital, and Xavier University. The act grants the district broad development powers to “undertake any project or program beneficial to the district whether within or outside the boundaries of the district.”
- Efforts to develop Shreveport’s bioscience cluster are led by the **Biomedical Research Foundation of Northwest Louisiana**. In 2005, BioSpace1, the first of three wet-lab incubators funded by the Louisiana Higher Education Bioscience Initiative, opened in InterTech Science Park, the foundation’s 800-acre research park that is located adjacent to the LSU Health Science Center. The 60,000-square-foot facility has wet-lab suites and build-to-suit space, all sharing common core laboratory equipment. In addition, a 33,000-square-foot biomanufacturing facility that is available for sale or lease has been constructed in the park. The foundation is very involved in creating an educated life science workforce in north Louisiana, with initiatives at the K-12 through university graduate levels. InterTech also provides access to angel and venture capital for life science start-up companies.
- In Baton Rouge, the **Louisiana Emerging Technology Center (LETC)**, a 60,000-square-foot incubator, was opened in 2005 and is already full. Planning has begun for a second building.

In addition to addressing companies’ needs for space, Louisiana has continued to work to address companies’ needs for early-stage capital by catalyzing the creation of a \$35 million early-stage venture fund, Louisiana Fund 1, and the \$24 million Louisiana Ventures Fund, which are described below.

In 2005, the State Legislature revised the state's corporate income tax structure to a Single Factor Sales Tax, effective in 2006. This was done to make Louisiana attractive for life science biomanufacturing facility development.

Building Bioscience R&D Capacity

Recent state investments in facilities

A new 140,000-square-foot building, supported by a \$40 million bond issue, was completed to house the Louisiana Cancer Research Consortium.

Construction of an FDA-compliant clinical manufacturing facility by the Louisiana Gene Therapy Research Consortium is scheduled to begin in 2006. (See below.)

Research programs

In FY 2002, the Legislature appropriated \$2.5 million in funding to support the **Neurobiotechnology Program of Louisiana**, a joint venture of the LSU Health Sciences Center and Tulane University Health Sciences Center to study Alzheimer's disease, stroke, and head injury. An additional \$3 million was provided in FY 2003.

In 2002, the Legislature approved a 12-cent-a-pack tax increase on cigarettes, 3 cents of which is being used to provide ongoing funding to the **Louisiana Cancer Research Consortium**, a joint venture of the LSU Health Sciences Centers in New Orleans and Shreveport and the Tulane University Health Sciences Center. Approximately \$10.5 million is being generated annually from this tax. In addition, the Louisiana Board of Regents has created a Competitive Advantage Fund that can provide up to \$50,000 to LCRC investigators.

The **Louisiana Gene Therapy Research Consortium**, which includes LSU Health Sciences Centers in New Orleans and Shreveport and the Tulane University Health Sciences Center, was created in 2000 with a \$45 million commitment from the state. The consortium receives \$5 million to \$10 million annually from state government to support the recruitment of leading researchers in the field of gene therapy, establish core technology laboratories at all three institutions, and develop gene therapy technologies for clinical applications. A portion of these funds is being used to construct a 22,000-square-foot FDA-compliant clinical manufacturing facility. Construction of the facility, which will be made available to both academic researchers and companies, is scheduled to begin in 2006.

Another program that has been used to build bioscience R&D capacity is the **Louisiana Board of Regents Support Fund (BORSF)**. Each fiscal year, 75 percent of interest earned on an educational trust fund that was established with monies received from the settlement of disputed oil and gas revenues and 75 percent of recurring oil and gas revenues are placed in the BORSF. This amounts to approximately \$20 million to \$25 million annually. These funds are awarded on a competitive basis to build the research infrastructure at Louisiana's universities. Bioscience projects have received priority because of the state's focus on this sector. The BORSF supports the following research programs:

- The **Research Competitiveness Program** awards funds to improve the competitiveness of Louisiana's scientists and engineers in competing for nonstate support for basic research.
- The **Industrial Ties Research Program** supports projects that promote new linkages between Louisiana universities and industry in areas with potential for immediate economic returns.

Faculty development programs

The BORSF seeks to attract and retain talent in Louisiana by offering funding for the following:

- **Endowed Chairs for Eminent Scholars Program** provides up to \$400,000 toward \$2 million endowed chairs to attract high-quality researchers to Louisiana.
- **Graduate Fellows Program** awards stipends and fellowships to retain and attract top-quality students.
- **Undergraduate Enhancement Program** supports the development of high-quality, content-focused educational programs.

Encouraging Academic/Industrial Interaction

Under the **Technology Commercialization Tax Credit**, companies partnering with Louisiana universities can claim an annual 15 percent credit against the costs of investment in machinery, equipment, and expenditures associated with obtaining rights for the use of technology, including patents, copyrights, licenses, and the leasing of equipment for an initial 4-year program time. In 2005, the State Legislature increased state **R&D Tax Credits** to 20 percent.

Moving Technology into the Marketplace

Supporting bioscience entrepreneurs and emerging companies

Louisiana's incubators provide mentoring and other forms of commercialization assistance to incubator clients.

Making Capital Available

Pre-seed and seed capital

The **Louisiana Angel Network (LAN)** is a registered Louisiana Nonprofit Corporation headquartered in Baton Rouge. LAN is a select network of accredited investors across Louisiana that provides early-stage investment capital to viable start-up companies ready for angel-round funding, typically defined by a company's need for anywhere from \$50,000 to \$2 million of capital in order to get to the next level ... that next level being anything from finishing product development to entering the marketplace. The LAN Web site is Louisiana's only Web-based forum for entrepreneurs and angel investors. The LAN provides a secure Web site where entrepreneurs can post their businesses' executive summaries and angel investors can browse those submissions to see what fits their investment interest profile.

The **Louisiana Technology Fund** is a \$2.4 million fund that comes from Louisiana's CAPCOs. When the CAPCO program was re-enacted several years ago, the Legislature included a provision that the firms must invest 10 percent of their earnings in Louisiana start-up technology companies. One way CAPCOs can satisfy this requirement is by investing in the Louisiana Technology Fund, which is operated jointly by Louisiana's four research parks.

The state played a role in founding **Louisiana Ventures LP** by investing \$5 million in the \$24 million seed and early-stage technology fund. The fund is focusing on making investments in the \$250,000 to \$3 million range.

The \$35 million **Louisiana Fund I** was created as a partnership of LSU System Research and Technology Foundation and Louisiana Economic Development to provide capital to companies developing and commercializing promising technologies, with an emphasis on those originating from Louisiana universities.

Providing Space for Bioscience Companies

Incubators

The **Louisiana Business and Technology Center (LBTC)**, a 47,000-square-foot business incubator on the LSU campus in Baton Rouge, has 27 tenants, of which seven are biotech related. The LBTC provides business planning, management assistance, market research, capital acquisition, and general business support.

BioSpace1 is a 60,000-square-foot, multitenant life sciences building located in the InterTech Science Park. The first floor of the facility is reserved for more established life science tenants and contains build-out space with a \$70-square-foot tenant fit-out allowance. The second floor is a business incubator for start-up companies and has 16 wet-lab suites; tenants also have use of a core laboratory facility. It is one of three wet-lab incubators that received funding from the state.

The **Louisiana Emerging Technologies Center** is a 60,000-square-foot wet-lab incubator located in Baton Rouge that opened in 2005. The incubator, which is located on the LSU campus, is full; and planning is underway for a second building.

InterTech Business Innovation Center is an 8,000-square-foot, wet-lab, multitenant business center with two laboratory and office suites, one of which contains a BSL-3 laboratory. The space has recently been renovated.

The **Center for Biomedical Technology Innovation (CBTI)** is a 7,700-square-foot multitenant incubator that includes predominantly dry labs, but does have one wet-lab suite. CBTI is located in the InterTech Science Park.

The **University of New Orleans Research and Technology Park's** Center for Energy Research Management includes a 15,000-square-foot biotechnology incubator.

Under development

Construction began on the **New Orleans BioInnovation Center** in 2005 and is scheduled to be completed in late 2007. The facility will house the Louisiana Gene Therapy Research Consortium.

Bioscience research parks

InterTech Science Park is a triangular parcel of 800 acres in central Shreveport anchored by three major medical centers—LSU Health Sciences Center in Shreveport to the south, Schumpert Medical Center to the east, and Willis-Knighton Medical Center to the west. In addition to the three medical centers, the site encompasses a medical school; a nursing school; the Virginia K. Shehee Biomedical Research Institute; a

Positron Emission Tomography Imaging Center; an emergency trauma center; a specialized orthopedic hospital; and an incubator facility for new, technology-based businesses. In 2003, InterTech received \$1.25 million in federal funding and \$10 million in state funding for construction of BioSpace1, a multitenant life sciences building.

Addressing Talent Needs

Specialized postsecondary programs

Developed by the Biomedical Research Foundation, The **Consortium for Education, Research and Technology (CERT)** is a nonprofit, 501(c)3 organization that brings together colleges in northern Louisiana to collaborate in curricula development and joint programs, to coordinate technology transfer projects, to promote technology-related economic development, and to provide workforce training. CERT works to make sure that curricula reflect industry needs, including those of the region's bioscience companies.

K-12 outreach programs

The **Biomedical Research Foundation** sponsors a number of K-12 education programs to create a life science ready workforce. They include **Science and Medicine Academic Research Training (SMART) Program**, a collaboration with LSU Health Sciences Center for gifted high school seniors; the **Math Science Technology K-12 Partnership Program (MST)**, a research and problem-based curriculum designed to improve educational outcomes for the average student, done in collaboration with the Caddo Parish School System; and the **Biotech Academy**, a high school academic magnet program being launched in 2006 to train gifted students interested in biotechnology careers, done in collaboration with the Caddo Parish School System.

The **Louisiana Gene Therapy Research Consortium** conducts outreach to encourage students to consider careers in gene therapy and works with universities and community colleges to ensure that curricula meet industry needs. The consortium holds summer workshops for teachers and supports undergraduate internships.

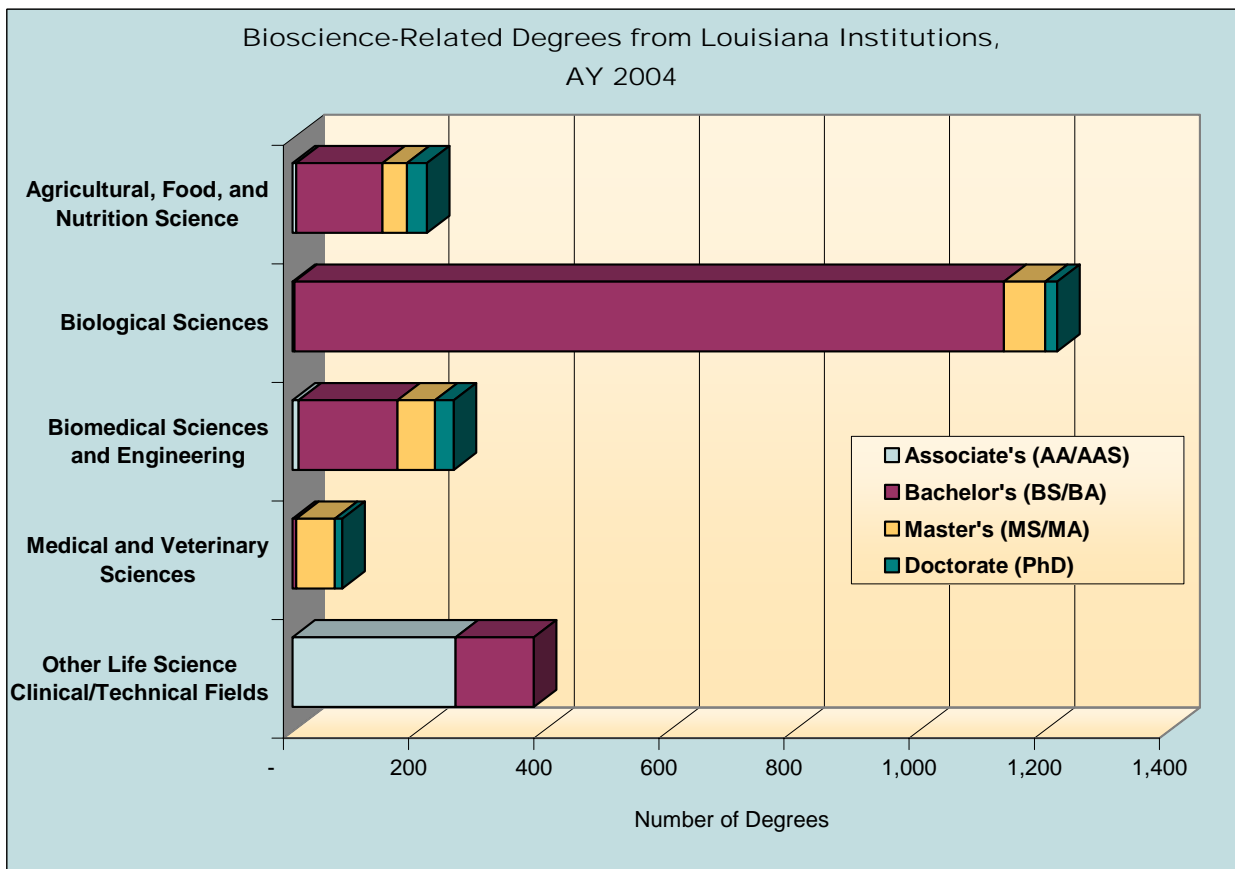
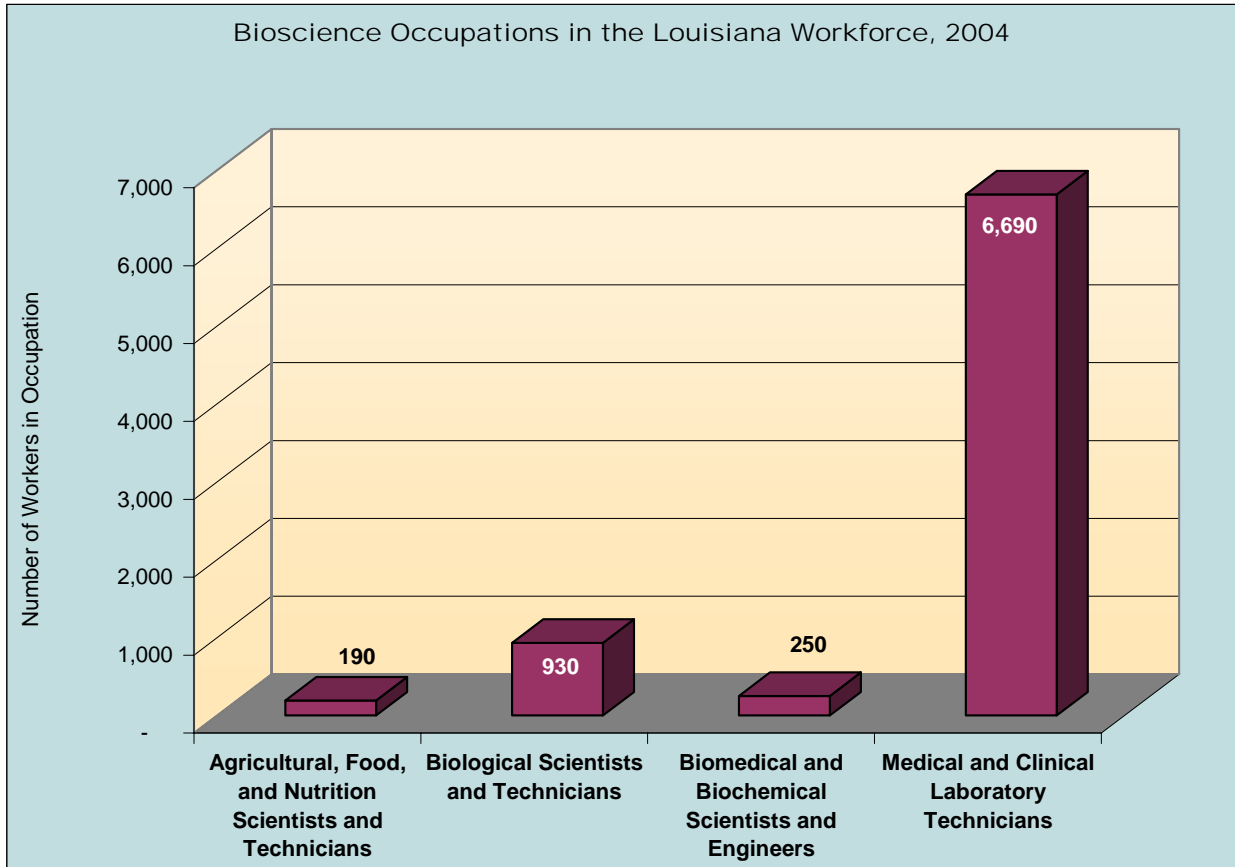
Contact

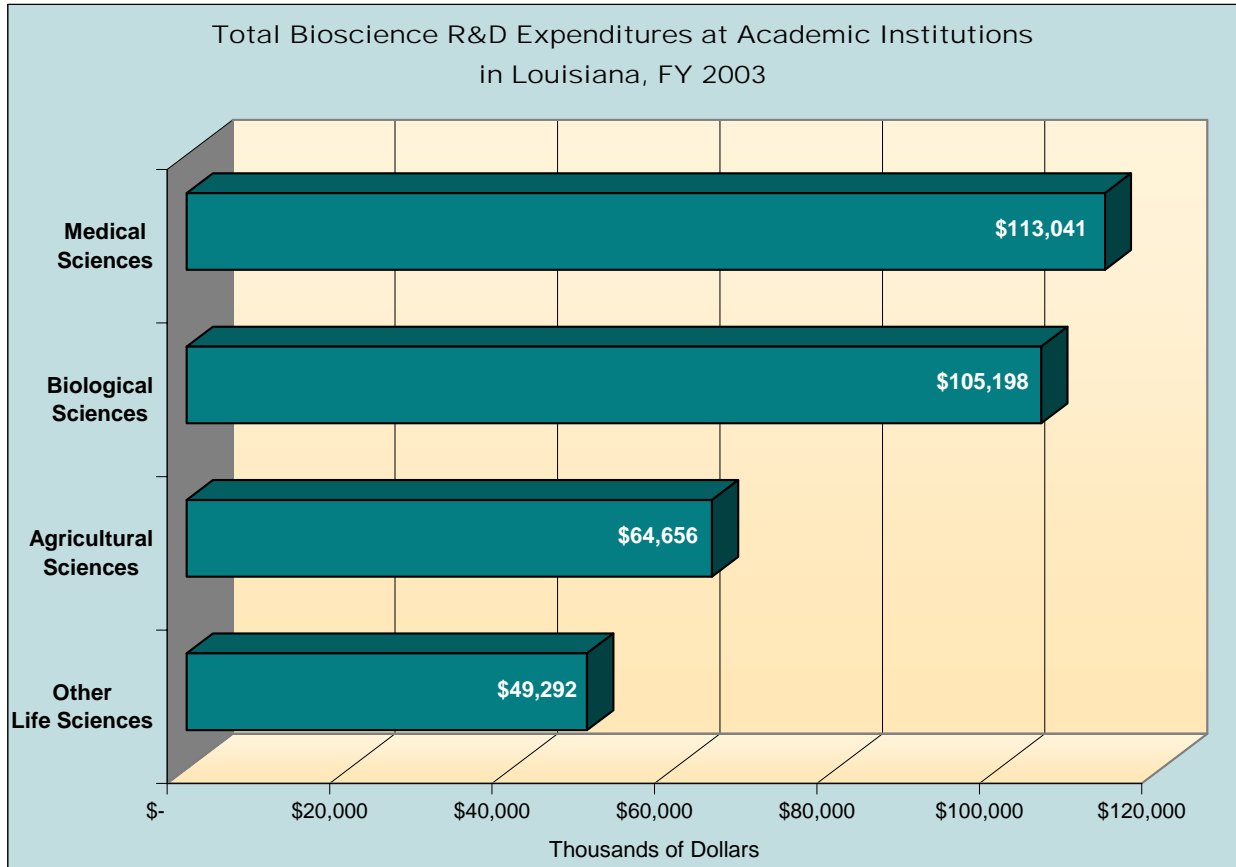
Robert E. Fudickar
Technology Industry Director
Louisiana Department of Economic Development
P.O. Box 94185
Baton Rouge, LA 70804-9185
(225) 342- 6816
fudickar@la.gov

Industry Subsector	Louisiana	United States
Agricultural Feedstock & Chemicals		
Establishments 2004	52	2,111
2001-2004 Establishment % Change	5.1%	0.4%
Employment 2004	4,276	104,893
2001-2004 Employment % Change	-3.9%	-6.9%
Share of U.S. Employment	4.1%	100.0%
Location Quotient	2.97	n.a.
Average Annual Wage 2004	\$79,207	\$63,383
Direct-Effect Employment Multiplier	8.01	10.91
Total Employment Impact	34,260	1,212,094
Drugs & Pharmaceuticals		
Establishments 2004	17	2,589
2001-2004 Establishment % Change	-29.2%	-0.6%
Employment 2004	265	313,207
2001-2004 Employment % Change	-8.3%	2.7%
Share of U.S. Employment	0.1%	100.0%
Location Quotient	0.06	n.a.
Average Annual Wage 2004	\$41,870	\$79,303
Direct-Effect Employment Multiplier	3.29	9.51
Total Employment Impact	873	2,731,321
Medical Devices & Equipment		
Establishments 2004	165	15,190
2001-2004 Establishment % Change	0.3%	0.2%
Employment 2004	1,107	411,460
2001-2004 Employment % Change	-1.1%	-3.6%
Share of U.S. Employment	0.3%	100.0%
Location Quotient	0.20	n.a.
Average Annual Wage 2004	\$26,986	\$56,449
Direct-Effect Employment Multiplier	2.07	4.56
Total Employment Impact	2,291	1,817,705
Research, Testing, & Medical Laboratories		
Establishments 2004	278	20,565
2001-2004 Establishment % Change	17.9%	19.4%
Employment 2004	2,363	413,550
2001-2004 Employment % Change	-12.0%	8.2%
Share of U.S. Employment	0.6%	100.0%
Location Quotient	0.42	n.a.
Average Annual Wage 2004	\$37,336	\$65,414
Direct-Effect Employment Multiplier	2.10	3.15
Total Employment Impact	4,970	1,272,936
TOTAL PRIVATE SECTOR		
Establishments 2004	110,536	8,156,137
2001-2004 Establishment % Change	0.5%	4.8%
Employment 2004	1,501,722	109,249,195
2001-2004 Employment % Change	-0.8%	-0.7%
Share of U.S. Employment	1.4%	100.0%
Location Quotient	n.a.	n.a.
Average Annual Wage 2004	\$31,671	\$39,003

Source: Battelle calculations -- based on Bureau of Labor Statistics QCEW data from the Minnesota Implan Group, RIMS II Employment Multipliers from the Bureau of Economic Analysis, and the Census Bureau's Economic Census.

Note: n.a. = metric is not applicable.





	Louisiana	United States	Rank
University R&D Expenditures, FY 2003			
Total (\$ thousands)	\$524,262	\$40,104,621	24
Life Science R&D (\$ thousands)	\$336,726	\$24,062,088	24
Percent of Total R&D	64.2%	60.0%	
Life Sciences Per Capita	\$74.89	\$82.74	
Change in Life Sciences FY 1999–2003	48.3%	52.7%	
NIH Support to Institutions, FY 2004			
Total (\$ thousands)	\$153,408	\$22,556,459	28
Per Capita Expenditures	\$34.12	\$77.56	
Change in Expenditures FY 2000–2004	95.7%	53.2%	
Higher Education Degrees in Bioscience Fields, AY 2004			
	2,161	111,329	20
Bioscience Occupations in the Workforce, 2004			
	8,060	616,140	23