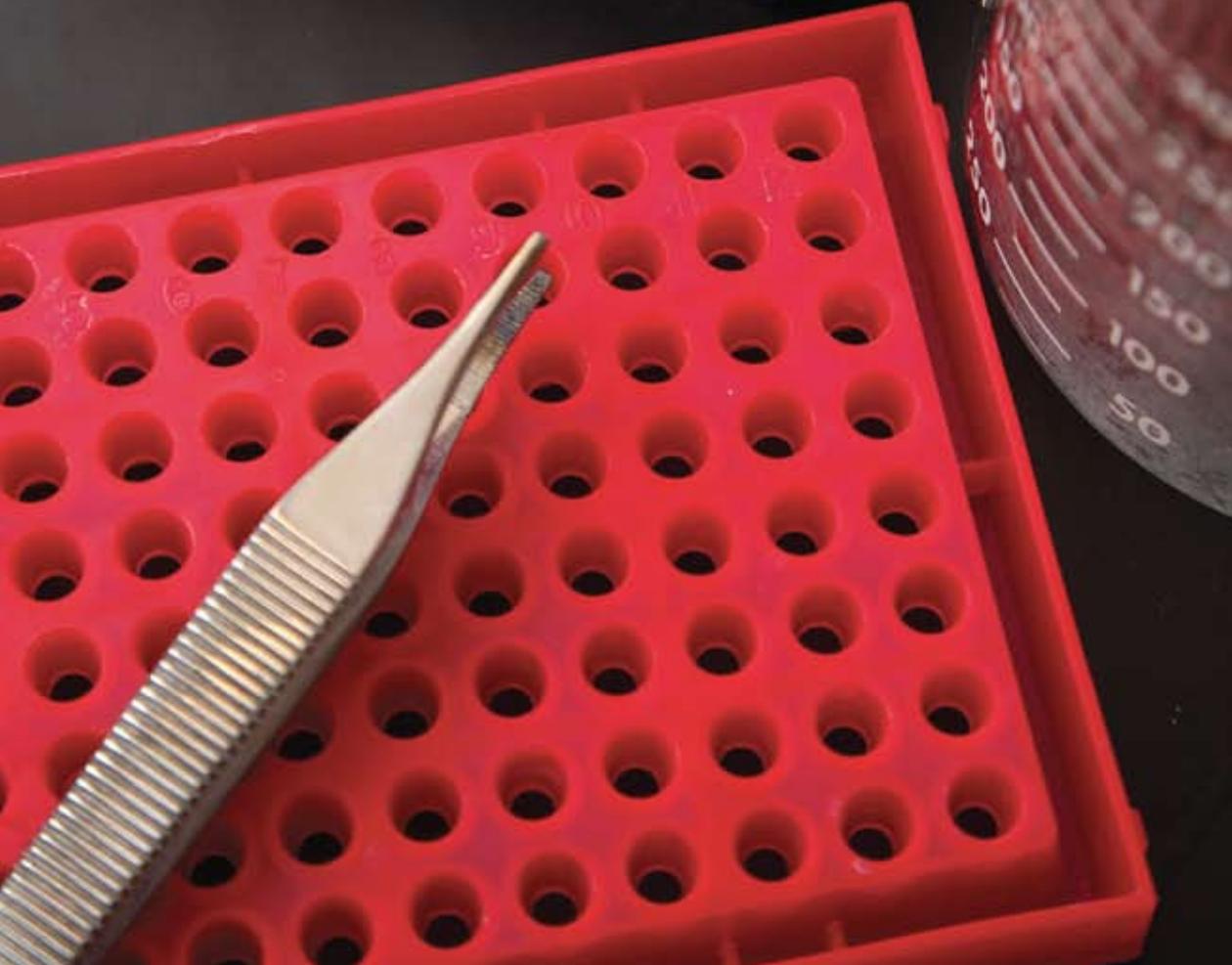




Technology Commercialization at the University of Virginia



This resource booklet, which complements the Faculty Entrepreneur’s Guidebook, is intended to illuminate the technology commercialization pathway at U.Va. By offering a comprehensive program of services — including start-up support, patenting and licensing, and corporate research services — we lay the groundwork for innovation and collaboration.

This quick reference chart will assist you in identifying the various resources that support the technology commercialization process. Additional links and program descriptions are provided in this brochure to ensure you have access to every possible resource, both at the University and in the region.

	Office of Economic Development	Spinner Technologies	Patent Foundation	Darden School/ Batten Institute	Sponsored Programs	Corporate and Foundation Relations	Research Parks
Start-up Support (page 5)	●	●	●	●	●		●
Patenting and Licensing (page 9)			●				
Corporate Research Services (page 10)	●				●	●	
Student Interns (page 11)	●	●	●	●			
Facilities (page 16)	●	●		●			●
Professional Development (page 18)	●	●		●			

**Support Resources for Technology Commercialization
at the University of Virginia**

■ Message from the Vice President for Research and Graduate Studies

The University of Virginia is deeply committed to providing the critical knowledge society requires to tackle the urgent challenges of our day. Cutting-edge research underway in laboratories around the University has the potential to significantly improve our quality of life today and for future generations.

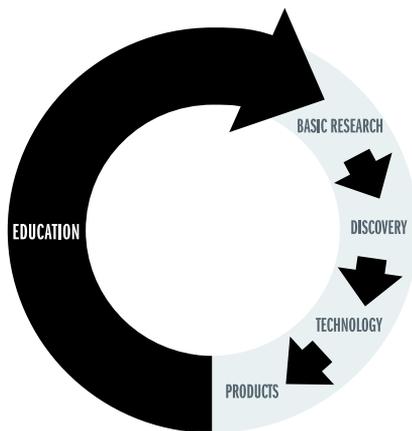


We are driven, not simply to conduct research, but to also make that research available for commercialization. The University has made a concerted effort to take advantage of the Bayh-Doyle Act of 1980 to provide a range of services that support faculty entrepreneurs in their commercial ventures and that make it easy for potential partners — investors, corporations, and funding agencies — to join them. The U.Va. Patent Foundation, the Darden Incubator, the T100 Alumni Mentoring Program, and the Office of Sponsored Programs are just a selection of organizations within the University that are fully engaged in the business of moving U.Va.'s innovative technologies into the realm of commercial viability.

We hope that this reference guide will encourage you to join us in bringing exciting new technologies to life and that it will help you reach out to those at the University who are available to assist with the process.

A handwritten signature in black ink that reads "Ariel Gomez".

Ariel Gomez



What is Technology Commercialization?



■ Start-up Support

The following resources are available to U.Va.'s faculty and students who strive to bring their inventions to the public by starting their own companies.

Translational Research Opportunities

Translational research is a critical step in the technology commercialization process. The University of Virginia's expertise and funding sources can assist scientists in translating their discovery-driven research into applied clinical or commercial settings prior to company formation. Examples include:

- **Coulter Foundation Translational Research Partnership Awards** (bme.virginia.edu/coulter/) support translational research projects involving Biomedical Engineering faculty and clinical co-investigators, with a focus on outcomes that improve health care.
- **Swortzel Collaborative Research Awards** support translational research projects that address unmet clinical needs in diseases of the eye, ear, and heart, as well as cancer. The program emphasizes collaboration by requiring two primary investigators from different departments within the University (at least one from the School of Medicine).
- **Clinical and Translational Science Award (CTSA)** pilot and feasibility projects will, pending NIH funding, provide a mechanism for the development of education and infrastructure to support clinical and translational research. Pilot and feasibility awards will require collaboration by U.Va. basic scientists and clinicians.
- **School of Medicine Office of Research** (<http://www.healthsystem.virginia.edu/internet/research/>) provides assistance in identifying various translational research opportunities.
- **Office of Economic Development** (<http://www.virginia.edu/vprgs/industry/translateresearchchopps.html>) provides information on current U.Va. translational research programs.

Translational Research

Coulter Research Partnership Awards
have resulted in:

6 filed patents

4-8 translational research
projects each year since 2006

over **\$900K** in
additional funding

21 faculty members involved from
10 separate departments

Office of Sponsored Programs

www.virginia.edu/sponsoredprograms

In FY 2007:

Sponsored research from all sources:

\$333M

Federally funded: **78%** of
which **55%** was from NIH

Industry funded: **6%**

School of Medicine: **62%**

School of Engineering and Applied
Science: **13%**

College of Arts and Sciences:
13%

Advice, Networking, and Space

The following programs are available to faculty entrepreneurs as they form and grow their companies:

- **Office of Sponsored Programs (OSP)** (www.virginia.edu/sponsoredprograms/) executes Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) contracts that allow U.Va. labs to support the research needs of start-up companies.
- **Office of Economic Development** (www.virginia.edu/vprgs/industry/) fosters industry partnerships, cultivates networking opportunities, and connects faculty with these resources.
- **T100 Alumni Mentoring Program** (www.virginia.edu/vprgs/industry/T100/) connects faculty entrepreneurs with teams of alumni business experts who provide hands-on mentoring and financial support.
- **The Patent Foundation** (<http://www.uvafp.org/>) is enthusiastic about licensing to faculty start-ups, and provides interested faculty with a preliminary evaluation of how they might structure and fund their new venture.
- **Spinner Technologies** (www.spinnertech.com/) start-up services include advice, referrals, affordable lab space, access to student interns, business formation support, business plan review, and guidance on U.Va. policies.
- **Darden School of Business/Darden Incubator** (www.darden.virginia.edu/) conducts university-wide business plan and concept competitions that identify promising ventures. Successful applicants receive monetary support, MBA student and alumni mentorship, and space.

- **Nursing Entrepreneurial Resource Center** (www.nursing.virginia.edu/research/ventures/nverc.aspx) gives nurse entrepreneurs the resources and guidance they need to move their innovative ideas for improved health care products to market.
- **University of Virginia Research Parks** (www.UVaFoundation.com/researchparks/) support more mature faculty start-ups by providing laboratory space in the Emerging Technology Center (ETC) building. Shared tenant facilities at the ETC building include a fully equipped conference room, a business center, and a hazardous materials storage room. The University's Office of Environmental Health and Safety removes hazardous materials from the building under U.Va. permits.

Funding

All start-up companies must evaluate their financial position, define a funding strategy, and secure capital. U.Va. supports several programs that help to provide access to funding:

- **Jefferson Corner Group I, LLC** (www.jeffersoncornergroup.com/) is a local member-managed angel fund that provides early stage funding to local and regional companies. It is administered by Spinner Technologies.
- **T100 Alumni Mentoring Program** (www.virginia.edu/vprgs/industry/T100/) awards pre-seed grant money to participating start-up companies.
- **Spinner Technologies** (www.spinnertech.com/) invests nominal cash in early stage ventures to help them get started.
- **Darden School of Business/Batten Incubator** (<http://www.darden.virginia.edu/>) offers the winners of its business plan and concept competitions money for start-up expenses.

Office of Economic Development

www.virginia.edu/vprgs/industry

T100 contributed **\$50K** to FEST (Fund for Excellence in Research and Technology) in 2007

T100 has assisted **15** faculty start-up companies and engages **20-30** alumni mentors each session

Over **\$50K** in start-up expenses funded by T100 grants

Additional local and regional funding sources include:

- **Center for Innovative Technology (CIT)** (<http://www.cit.org/CITGAFund/>) is a state-wide non-profit corporation that administers the CIT GAP Fund, the GAP BioLife Fund, and the Commonwealth Technology Research Fund. It also offers assistance with Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) grants through its Federal Funding Assistance program.
- **Virginia Active Angel Network (VAAN)** (www.virginiaactiveangelnetwork.com/) is a network of investors that provides advice and funding to early and seed-stage ventures.
- **Tall Oaks Seed Partners** (www.talloakscapital.com/) offers early stage advice and funding to seed-stage technologies.

Other community resources for start-ups

U.Va. integrates its technology commercialization initiatives with those in the broader community. The University works in partnership with the following local and regional groups that nurture innovation:

- **Small Business Development Center (SBDC)** (avenue.org/sbdc/) provides financial, marketing, and operations counseling, business plan assistance, and training to small and medium-sized businesses in Central Virginia.
- **SCORE — Counselors to America's Small Business** (www.score-494.org/) is a nonprofit association dedicated to entrepreneur education and the formation and growth of small businesses. This is accomplished by counseling, providing answers to specific questions, business plan review, and business seminars.
- **Charlottesville Business Innovation Council (CBIC)**, formerly the VPTC+CVG, (www.CvilleBIC.org) is a private-sector advocate and catalyst for entrepreneurship and technology-based economic development. As part of its business plan review service, young companies can have their business plan critiqued by a group of experienced entrepreneurs and investors.



■ Patenting and Licensing

The Patent Foundation (www.uvaf.org) obtains patents on inventions and discoveries made by U.Va. scientists and allows companies to sell patented products in exchange for the company's efforts to commercialize them. Royalties paid by these companies are used to provide incentives to U.Va. inventors and to fund further research.

- **Licensing Department** works with faculty to assess the patentability of an invention, evaluate its commercial potential, develop a marketing strategy, and negotiate a license agreement.
- **Patent Department** drafts and prosecutes patent applications. Its in-house patent attorneys reduce patent costs, enhance portfolio management, and develop personal attorney-inventor relationships.
- **Business Department** ensures that the licensee is meeting its contractual obligations and distributes royalty income with the inventors and U.Va.

U.Va. Patent Foundation
www.uvaf.org

More than **\$17M** distributed
to U.Va. inventors

More than **\$35M** distributed
to U.Va.

Nearly **180 new**
invention disclosures each year

7 disclosures per **\$10M**
in sponsored research (above
national average)

Completed **58** deals (FY 2007)

Currently have **357** active
licenses

Corporate and Foundation Relations
www.virginia.edu/corporateconnections

\$21M provided by 271 industrial sponsors in FY 2007

\$24M in sponsored research provided by 152 foundations

Foundations accounted for **7%** of sponsored research

■ Corporate Research Services

The following programs support the exchange of resources and information among University entrepreneurs, corporations, and foundations:

- **Corporate and Foundation Relations (CFR)** (www.virginia.edu/corporateconnections/) is a specialized office within University Development and Public Affairs that establishes mutually beneficial relationships (philanthropy, faculty research, recruiting) between corporations, foundations, various schools/units, and the broader university.
- **Office of Sponsored Programs (OSP)** (www.virginia.edu/sponsoredprograms/) negotiates contracts and grants with a wide variety of sponsors. OSP also handles research contracts, accounting and billing matters.
- **Health Care Product Evaluation Center (HCPEC)** (www.uva-hcpec.org/) provides impartial, systematic, and in-depth evaluation of medical devices and health care products. Experienced physicians and nurses, as well as other faculty experts, evaluate products at any stage of development. HCPEC conducts a variety of types of evaluations from testing prototypes to assessing the potential of existing devices for off-label use.
- **General Clinical Research Center (GCRC)** (www.healthsystem.virginia.edu/internet/gcrc/) provides investigators with the specialized resources necessary to conduct advanced clinical research. Resources include access to inpatient beds, skilled research nurses, a core assay laboratory, a metabolic kitchen, outpatient facilities, computing and statistical consultants, and sleep and exercise physiology laboratories.

■ Student Interns

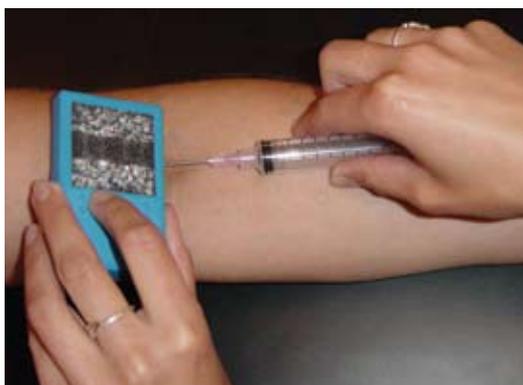
Internships provide real-world, problem-solving experience for our students while offering companies access to new talent and potential employees:

For Students

- **Darden School of Business/Batten Institute**
 - **Batten Venture Internship Program (BVIP)** (www.darden-vc.org/Resources/VentureInternshipProgram/tabid/84/Default.aspx) subsidizes summer internships for MBA students interested in working at a venture capital, start-up, or small-scale business organization. Darden students gain experience with venture capital or early stage enterprises.
 - **Darden Incubator** (www.darden.virginia.edu/html/standard.aspx?menu_id=208&styleid=3&id=170) connects early stage business ventures with Darden MBA students to support the venture's development. Typically, businesses enter the program having participated in the business concept and plan competitions held annually at Darden.
 - **Darden Business Projects** (www.darden.virginia.edu/Batten/entrepreneurship/experiential.htm) make teams of student consultants available to help address specific business challenges. They reframe issues, analyze data, and present solutions in a real-world environment.
- **Patent Foundation** (www.uvafp.org) offers two internship programs. Graduate students in the sciences can participate in a paid internship of four to six hours a week to learn the basics of technology evaluation and marketing. Law students with a technical background can receive academic credit by taking the Patent and Licensing Clinic. This clinic introduces the students to patent prosecution and license agreement drafting.



- **Spinner Technologies** (www.spinnertech.com/) gives graduate students in science and business the opportunity to participate in a paid internship as a member of a business plan team while benefiting from firsthand exposure to starting a company. Select interns are offered due diligence work with the Jefferson Corner Group.
- **Biomedical Engineering Industrial Internship Program** (www.bme.virginia.edu/ugrad/internships/) offers BME undergraduate students, typically in their third year, the opportunity to work full-time at a corporate site for a ten-week summer internship. Projects are usually related to biomedical engineering, biotechnology, or medical devices. Students are compensated through a stipend/wage formula. In the fall, the interns present their summer work at a BME-sponsored poster session describing their summer projects.
- **Biotechnology Training Program (BTP)** (faculty.virginia.edu/biotech/biotech_overview.html) is one of 23 Biotechnology Training Programs sponsored by the National Institutes of Health nationwide. It brings together the top Ph.D. graduate students from all biological, chemical, and engineering disciplines at U.Va., giving students a cross-disciplinary perspective on what it takes to translate outstanding bench science into technological breakthroughs. The program includes a full-time, one-to-three month company internship. Interns are supported by a full BTP stipend or can be partially or fully supported by a company. Internships are science- and experiment-oriented. The BTP also offers company tours, dinners with successful industrial scientists and CEOs, a newsletter, and biennial symposia that feature industrial and academic speakers.



- **Center for Engineering Career Development** (<http://www.seas.virginia.edu/careerdevelopment/>) sponsors fall and spring career fairs and provides engineering students access to internship opportunities through CAVLink, On-Grounds Interviewing, CareerSearch, Going Global, and Vault. The Center offers many services to help engineering students engage with companies in their industry of choice and establish a network of contacts.
- **University Career Services (UCS)** (<http://www.career.virginia.edu/students/programs/internship/>) provides a how-to guide on becoming an intern, the value of internships, and how UCS can assist in finding ideal internships.
- **University Internship Programs (UIP)** (www.virginia.edu/uip) administers an academic internship program designed for rising 3rd and 4th year U.Va. students consisting of two parts: a weekly 4-credit academic seminar and a 10–15 hour per week internship in the U.S. and/or abroad, during the regular academic year and/or the summer session. Internships are available in a wide variety of areas including: arts and publications; for-profit and not-for-profit business administration; NGOs; education; environment; government and public policy; medical, dental, mental health, and health-related areas; human and social services; legal system and criminal justice; media; sports administration; public relations and event planning; technology and web development; and more.
- **Jefferson Externships** (www.career.virginia.edu/employers/extern.php) enable students to shadow a professional in almost any position and field. The externships give students the chance to explore a career in a realistic environment. Jefferson Externships may be scheduled at any time convenient for both the student and the sponsor and can vary in length from one day to three weeks.

Spinner Technologies
www.spinnertech.com/

Started more than **10** new
companies

Awarded more than **7**
entrepreneurial internship
scholarships

Operates **3,400**
sq.ft of laboratory and
office space

Created Jefferson Corner Group
to provide **angel**
financing for
faculty and local start-ups

For Companies

- **Office of Economic Development** (www.virginia.edu/vprgs/) connects companies that are interested in establishing student internships with the appropriate U.Va. school or department.
- **Darden School of Business/Batten Institute**
 - **Batten Venture Internship Program (BVIP)** (www.darden-enc.org/Resources/VentureInternshipProgram/tabid/84/Default.aspx) subsidizes summer internships for MBA students interested in working at a venture capital, start-up, or small-scale business. Companies benefit from having access to MBA talent for the summer.
 - **Darden Incubator** (www.darden.virginia.edu/html/standard.aspx?menu_id=208&styleid=3&id=170) supports early stage business ventures by connecting them with Darden MBA students. Participation is generally, but not exclusively, through the business concept and plan competitions held annually at Darden.
 - **Darden Business Projects** (www.web.virginia.edu/outreach/cgi-bin/outreach/virginia/ProgDetails.pl?idnumber=195) are cooperative ventures between companies and the Darden School of Business during the school year. Participating companies can identify a business challenge to be targeted by a team of MBA students.



Internships

- **Biomedical Engineering Industrial Internship Program (BME)** (www.bme.virginia.edu/ugrad/internships/) provides corporate partners with access to the engineering skills, current knowledge, and leadership abilities of U.Va.'s BME undergraduate students. Students work full-time at the corporate site for a ten-week summer internship. Projects are usually related to biomedical engineering, biotechnology, or medical devices with companies ranging from small, high-tech start-up settings to large corporations. Students are compensated through a stipend/wage formula. BME has received a grant from the National Science Foundation that provides matching funds to student projects, reducing the cost to the company.
- **Biotechnology Training Program (BTP)** (faculty.virginia.edu/biotech/biotech_overview.html) provides access to Ph.D. students who are interested in translating bench science into technological breakthroughs. U.S. or overseas companies can provide these students with one-to-three month internships as well as provide speakers at symposia organized by the program. Interns are supported by a full BTP stipend or can be partially or fully supported by a company. Internships should be science- and experiment-oriented.
- **Career Services' CAVLink System** (www.career.virginia.edu/employers/jobpost.php) provides companies with the opportunity to share job openings with U.Va. students and alumni by creating, updating, and editing open positions using the CAVLink system.
- **Jefferson Externships** (www.career.virginia.edu/employers/extern.php) facilitates opportunities for students to shadow a professional in almost any career field imaginable on a volunteer-basis. Sponsor employers are able to prescreen students for internship or job opportunities. Jefferson Externships may be scheduled at any time convenient for both the student and the sponsor and can vary in length from one day to three weeks.

BME Industrial Internship Program has created **92** bio-related internships in **40** different companies since 2000

BTP has provided **20** internships to U.Va.'s top science Ph.D. students, including **3** in Holland, Sweden and England

BTP was recently recognized by the National Institute of General Medical Sciences (NGMS) for **notable recruitment** and retention of underrepresented minorities



■ Facilities

Whether in need of office or lab space, young companies can turn to the following resources to identify facilities where they can hatch ideas and develop their core business:

- **Office of Economic Development** (www.virginia.edu/vprgs/industry/) draws upon its extensive network of community resources to connect companies in need of facilities to available lease and rental properties.
- **Spinner Technologies** (www.spinnertech.com/) provides affordable lab and office space, as available, to companies that participate in its program. Its referral service includes contacts and connections for commercial real estate in the community.
- **Darden School of Business/Batten Institute** (www.darden.edu/html/standard.aspx?menu_id=208&styleid=3&id=168) offers companies that win the business plan or concept competitions office space in the Darden Incubator as well as some infrastructure support.
- **University of Virginia Research Parks** (www.UVaFoundation.com/researchparks) support more mature faculty start-ups by providing laboratory space in the Emerging Technology Center (ETC) building located in the University's Research Park. The ETC building includes shared tenant facilities such as a fully equipped conference room, a business center, and a hazardous materials storage room. The University's Office of Environmental Health and Safety removes hazardous materials from the building under U.Va. permits.

Other Facilities Resources

- **Albemarle County** (www.albemarle.org) offers GIS Web, which allows the Web user to research parcels of land including assessments and zoning. The Department of Community Development provides information about new development projects or new commercial space, including assistance from the County's Business Development Facilitator.
- **City of Charlottesville Office of Economic Development** (www.charlottesville.org/econdev) serves as a catalyst for public and private initiatives that promote the long-term economic vitality of Charlottesville by expanding the tax base and providing quality job opportunities. A searchable database of properties for sale and lease can be found at www.charlottesville.org/Index.aspx?page=585.
- **Thomas Jefferson Partnership for Economic Development (TJPED)** (www.tjped.com/) offers one source of information for business decision makers seeking to start, grow, or site a company in the Greater Charlottesville Region (City of Charlottesville, Albemarle, Fluvanna, Nelson, Madison, Greene, Culpeper, Orange, and Louisa counties.) TJPED facilitates the site selection process by providing financial, workforce, real estate, logistics, market, and infrastructure analysis for individual or multiple sites in the region.



Research Parks

www.UVaFoundation.com/researchparks

Over **600 acres** at two research parks

The University of Virginia

Research Park: **7** buildings,
401,000 gsf of completed development and
200 acres of open space

Fontaine Research Park: **8** buildings,
500,000 gsf of completed development and
20 acres of open space

Together, the parks have nearly
30 tenants

Darden School of Business

www.darden.virginia.edu

Executive Education participants rank

Darden faculty **#1** for teaching and course design year after year

(Financial Times survey of Executive Education programs)

Over 100 Executive Education offerings to nearly

4,000 executives and corporate contacts each year**54** students were admitted to Darden's MBA for Executives program in its inaugural year (2006)Darden Incubator hosts an average of **10** early-stage companies per year

■ Professional Development

Recognizing that business success is firmly rooted in human capital, the University offers many programs for professional development:

- **Darden School of Business**

- **Executive Education** (www.darden.virginia.edu/html/area.aspx?area=execed&styleid=2) offers open-enrollment programs that address function-specific and general management challenges. Customized executive education programs are also available.
- **MBA for Executives** (www.darden.virginia.edu/html/programs.aspx?prog=mbaex) combines the features of Darden's executive education with its highly regarded MBA program. Over a period of 22 months, students participate in intensive leadership residencies, traditional case studies, and distance learning activities. Students graduate with a full-fledged MBA from the University.

- **McIntire School of Commerce**

- **Executive Development** (www.commerce.virginia.edu/academic_programs/exec_development/overview.htm) offers custom training as well as certificate programs in finance and investing, marketing, management, and information technology. The School's executive training and education portfolio has expanded to include international executive programs in Europe and Asia focused on innovation and globalization.
- **McIntire Business Institute (MBI)** (www.commerce.virginia.edu/academic_programs/exec_development/MBI/index.htm) provides those with little or no business experience with a working knowledge of business practice and theory. Conducted during the summer at U.Va., the MBI is open to graduates from the University and from other institutions of higher learning.

- **Office of Economic Development** (www.virginia.edu/vprgs/industry/) matches corporate education needs with appropriate academic units at the University.

- **Center for Executive Development at the School for Continuing and Professional Studies** (www.scps.virginia.edu/ced/about.php) uses the University's resources to create tailor-made executive leadership and professional development programs designed to meet the specific needs of a business or organization.

The University of Virginia enthusiastically supports the transfer of technology into the marketplace, to serve the public good. We hope this reference guide provides you with an understanding of U.Va.'s technology commercialization resources. If you have any questions, please contact any of the following technology development partners:

Office of Economic Development 434-924-7566
<http://www.virginia.edu/vprgs/industry/>

Spinner Technologies 434-924-2693
<http://www.spinnertech.com/>

U.Va. Patent Foundation 434-924-2175
<http://www.uvapf.org/>

Darden School of Business 434-924-3900
<http://www.darden.edu/>

Office of Sponsored Programs 434-924-4270
<http://www.virginia.edu/sponsoredprograms/>

Corporate and Foundation Relations 434-924-4159
<http://www.virginia.edu/corporateconnections/>

Research Parks 434-924-0696
<http://www.uvafoundation.com/researchparks/>

School of Medicine, Office of Research 434-243-7088
<http://www.healthsystem.virginia.edu/internet/research/>

