



MGMT/BIOE 633:
LIFE SCIENCE ENTREPRENEURSHIP
Roles of Physicians, Scientists and Engineers in High-tech Startups

Course Faculty: Jack M. Gill, PhD
Paul Cherukuri, PhD
Will Clifton, MD

TAs: Christina Ulrich
Amadeus Zhu



Simulcast Partners:



Course Registration (for UKy): <https://www.engr.uky.edu/lse-2019/>

The roles of physicians, scientists, engineers and MBAs in biotech, medical device, and other life science companies will be described and characterized. The major trends and innovations driving the creation of new products in large, established companies and venture-capital-backed startup companies are discussed. This pragmatic, experienced-based course describes the venture capital process, the formation and capitalization of high-tech companies, sources of technologies, role of tech transfer at universities and medical schools, startup operational issues, role of VCs and board members, execution time frames, the liquidity process, IPOs and mergers, and payout prospects for founders and investors.

Live, ongoing case studies guest entrepreneurs: biotech, medical device and healthcare informatics companies are presented by many notable MD and PhD founders and CEOs. In the **final classes**, a **high-tech career-planning guide** is discussed, plus a **special lecture on Intelligence, Leadership and Entrepreneurship** will be presented. **Insider secrets and success stories** from decades of highly successful company formations and **Venture Capital practice** in medical, biotech and infotech companies will be shared.

Open to MS, PhD, MD and MBA students at Rice University and TMC Institutions

March 11 – April 17, 2019 • Mondays and Wednesdays, 5 PM – 7 PM (EST)

Room 403, Charles T. Wethington, Jr. Building (Rose St & South Lime)

University of Kentucky (via Video Conferencing)

Mar. 11 **Course Kickoff:** Reginald DesRoches, PhD
Course Intro, Schedule, Grading, Homework
Entrepreneurs, VCs & VC Firms, Vanguard Story

Mar. 13 **Startup Company Dynamics and Role of Boards in Startups**
Guest: Mehdi Razavi, MD

Mar. 18 **Medical Devices and Diagnostics**
Guest: William Cohn, MD

Mar. 20 **Biotech and Pharmaceutical Industries**
Guest: Brittany Barreto, PhD

Mar. 25 **Startup Financings, Valuations, Outcomes**
Guest: Larry Lawson

Mar. 27 **Stock Options & Compensation**
Guest: John Cooke, MD, PhD
BBQ Dinner w/ Scott Parzynski, MD

Apr. 1 **Twelve Life Science Case Studies**
Guest: Bryan Haardt
Mid-semester Quiz

Apr. 3 **Entrepreneur Support Organizations**
Guests: Tom Luby, PhD; Lance Black, MD;
Brad Burke, MBA; enventure Leadership

Apr. 8 **Landmines on the Road to Success**
Guest: James W. Welsh, MD

Apr. 10 **Intelligence, Leadership and Entrepreneurship**
Guest: Todd Rosengart, MD, FACS
Student Essays Due

Apr. 15 **Career Planning Lecture & Student Discussion**
Guest: Joy Wolfram, PhD

Apr. 17 **Summary, Q&A and Course Survey; Student Presentations**

ALTERNATE
Apr. 3rd LOCATION:
2450 Holcombe
77021



Jack M. Gill, PhD
jack@gillfndt.org

Jack Gill is a 35-year veteran of Silicon Valley and Boston and has founded and financed dozens of successful companies in the instrumentation, computer, telecom, and medical industries. He co-founded **Vanguard Ventures** in 1981. Vanguard's first five funds invested \$155 million in 103 startups which generated more than **\$1 billion return** to investors. Successes include Aldus, AFC, Ciena, EndoSonics, Indigo Medical, Mycogen, Digital Microwave, Tut Systems, Cobalt Networks, Digital Island, Network Appliance and Hansen Medical. Dr. Gill joined the **Harvard Medical School** faculty in 2000. He teaches entrepreneur courses at **Harvard, MIT, Stanford, and Rice**. Jack was on the boards of the **National Academies, Project HOPE, the Horatio Alger Association** and **MD Anderson**. He is a former Trustee of **Indiana University** & member of the Executive council of the **Texas ETF**. Jack was a 1999 winner of the **Horatio Alger Award**.



Paul Cherukuri, PhD
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Paul Cherukuri earned his PhD in Chemistry under the supervision of **Nobel Laureate Richard E. Smalley** and R. Bruce Weisman at **Rice University** and has a 15+ year history in academia and industry. As Executive Director of the **Institute of Biosciences and Bioengineering (IBB)**, Paul is responsible for the development and implementation of cross-disciplinary research and educational programs that strengthen Rice University's scientific development in biosciences and bioengineering. He serves as the key liaison between **Rice University** and the **Texas Medical Center** to support and develop collaborative research opportunities for IBB faculty and the broader Rice science/engineering community. Paul also directs an active research program in the field of scalable directed self-assembly of artificial and biological nanoscale materials (Teslaporesis) and is a subject matter expert in nanotechnology, drug development and biomedical devices.



Will Clifton, MD
will.clifton@rice.com

Will Clifton is Director of **Global Medical Innovation** at Rice. He is a life-science entrepreneur and bioengineer with a background in medical device and innovation education. His focus is on the global future of medical innovation, where the city of Houston, with its prolific medical research community and diverse culture, is a natural home.

Prior to his work at Rice, Dr. Clifton was Senior Director of Medical Affairs at **Procyon**, where he spent six years developing a minimally invasive pump to treat heart failure, taking it from a prototype through first-in-human clinical trials. He earned his medical degree from **Baylor College of Medicine** in 2012, with advanced research in otolaryngology as a **Howard Hughes Medical Institute fellow**.



2019	Faculty Talks & Guest Speakers	Speakers	Topics
Mon 3/11	<ul style="list-style-type: none"> Course Kickoff: Reginald DesRoches, PhD, <i>William and Stephanie Sick Dean of the George R. Brown School of Engineering</i> 	DesRoches	<ul style="list-style-type: none"> Course Kickoff
	Course Intro, Schedule, Grading, Homework Gill Lectures: Entrepreneurs, VCs, VC Firms, The Vanguard VC Story	Gill	<ul style="list-style-type: none"> Course schedule, expectations Basics of startups, entrepreneurs, VCs VC Industry... players, dynamics Vanguard Venture Partners... Industry Focus, Portfolio, Outcomes, ROI
Wed 3/13	Gill Lectures: Startup Company Dynamics and Role of Boards in Startups	Gill	<ul style="list-style-type: none"> Getting a new company started Role of Boards and Advisors in Startups
	Guest: Mehdi Razavi , MD, <i>Founder & President, Saranas</i>	Razavi	<ul style="list-style-type: none"> Razavi: The Saranas Story
Mon 3/18	Cherukuri Lecture: Medical Devices and Diagnostics	Cherukuri	<ul style="list-style-type: none"> Trends, jobs, opportunities and innovations
	Guest: William Cohn , MD, <i>CV Surgeon, Inventor, VP for Johnson & Johnson Medical Devices Companies, Exec. Director for J&J Center for Device Innovation</i>	Cohn	<ul style="list-style-type: none"> Cohn: Startups of a serial inventor, entrepreneur and surgeon
Wed 3/20	Cherukuri Lecture: Biotech and Pharmaceutical Industries	Cherukuri	<ul style="list-style-type: none"> Trends, jobs, opportunities and innovations
	Guest: Brittany Barreto , PhD, <i>Co-Founder & CSO, Pheramor</i>	Barreto	<ul style="list-style-type: none"> Barreto: The Pheramor Story
Mon 3/25	Gill Lecture: Startup Financings, Valuations, Outcomes	Gill	<ul style="list-style-type: none"> "How-to" info on raising startup capital, considerations, tradeoffs, dos & don'ts
	Guest: Larry Lawson , <i>Founder & Chairman, HeartcoR Solutions and Proxima Clinical Research</i>	Lawson	<ul style="list-style-type: none"> Lawson: The HeartcoR and Proxima Stories
Wed 3/27	Gill Lecture: Stock Options & Compensation	Gill	<ul style="list-style-type: none"> Employee stock option practices
	Guest: John Cooke , MD, PhD, <i>Chair, Department of Cardiovascular Sciences, Houston Methodist Research Institute</i>	Cooke	<ul style="list-style-type: none"> Cooke: Startup lessons learned by a Physician-Scientist
	Rice Dinner - UKy will not have this dinner event		
Mon 4/1	Clifton & Gill Lecture: Twelve Life Science Case Studies	Clifton & Gill	<ul style="list-style-type: none"> Life Science startups, IP origin, founders, issues, winners, losers, irrelevants
	Guest: Bryan Haardt , <i>CEO, Decisio Health</i>	Haardt	<ul style="list-style-type: none"> Haardt: The Decisio Story
	*** ** MID-SEMESTER 20-MIN. QUIZ ON ENTREPRENEUR FUNDAMENTALS *** **		
Wed 4/3	Entrepreneur Support Organizations Guest: Tom Luby , PhD, <i>Head, JLABs@TMC</i> Guest: Lance Black , MD, <i>Assoc. Dir., TMCx Accelerator & Interim Dir., TMC Innovation Institute</i> Guest: Brad Burke , MBA, <i>Managing Director, Rice Alliance for Technology & Entrepreneurship</i> Guest: Robert Williams , <i>Executive Director & Kedar Karkare, PhD, <i>Board Member, enventure</i> Clifton: Panel Discussion with All Four Entrepreneur Support Organizations Tour of JLABS and the Johnson & Johnson Center for Device Innovation (CDI) </i>	Luby Black Burke enventure Clifton	<ul style="list-style-type: none"> These organizations are Major resources for Life Science entrepreneurs in Houston Facilities and Services for the Life Science Startup Entrepreneur
Mon 4/8	Gill Lecture: Landmines on the Road to Success	Gill	<ul style="list-style-type: none"> A favorite entrepreneur topic, loaded with do's & don'ts, smart execution, best practices
	Guest: James W. Welsh , MD, <i>Founder, MolecularMatch, MD Anderson</i>	Welsh	<ul style="list-style-type: none"> Welsh: The MolecularMatch story
Wed 4/10	Gill Lecture: Intelligence, Leadership and Entrepreneurship How they Interlink for Success	Gill	<ul style="list-style-type: none"> Noteworthy findings from scholarly studies about achievers plus pragmatic entrepreneurial interpretations. Popular topic for the ambitious.
	Guest: Todd Rosengart , MD, FACS, <i>Chair of Surgery, Baylor College of Medicine</i>	Rosengart	<ul style="list-style-type: none"> Rosengart: Surgeon, Serial Entrepreneur
	*** ** UKy Auditing Only - no credit, no assignments due *** **		
Mon 4/15	Gill Lecture: Career Planning... A Roadmap to Success	Gill	<ul style="list-style-type: none"> Gleaned from teaching thousands of young professionals in Silicon Valley Self-evaluation, improvement kit, exercises
	Guest: Joy Wolfram , PhD, <i>Assistant Professor, Mayo Clinic</i>	Wolfram	<ul style="list-style-type: none"> Wolfram: Making Career Decisions
Wed 4/17	Last class, Summary, Q&A and Ten 5-minute Student Oral Presentations Course Survey	Gill Cherukuri Students	<ul style="list-style-type: none"> Open-ended Q&A- all topics Student Team Presentations Student Survey