BioVentures Course Syllabus
Spring 2015

Credits: 2 credit hours. The class is also available for certificate.

Location and Time: Class will be held at the Bioscience Research Collaborative (BRC) building, room 282 located at the corner of Main and University, once a week, Thursday evenings from 6:00 to 9:00pm. Class space is being sponsored by Rice U.

Course number: UTMB course HPTM 6211 / Rice U BIOE621

Course Overview: A hands-on immersion into life science entrepreneurship through practical lessons that are applied to students’ group projects throughout the course. This practical course will provide the skills and resources to facilitate scientist-driven entrepreneurship in conceiving new life science ventures and translating research ideas into commercial ventures.

Course Proposed For: Postdocs, Senior Graduate, Medical and Business Students, Medical Residents or Fellows at institutions affiliated with the Texas Medical Center.

Class Format: This course is divided into core lecture and project components where the core lectures consist of a combination of interactive, problem-based “practical” from the faculty and talks from visiting life science entrepreneurs. The project component is a “hands-on” experience where students will work in teams on their respective IP and develop business plans.

Goals and Learning Objectives for Course: Students will graduate from this course with a practical understanding and experience in how to evaluate a life science technology as a basis for starting a new business.

The student/fellow initiated course is a 10 week intensive undertaking, where teams of 4 students begin with nascent intellectual property (IP), conduct market/IP diligence, identify commercially viable products, create developmental/commercialization/financing plans, culminating in a detailed investor presentation. Each team would be guided by an experienced domain-specific entrepreneur for the duration of the course. The goal is to provide students with practical experiences in conceptualizing commercial applications for their research, and also provide important skills of how to lead and function within a team, reducing complex biological concepts to simple value propositions.

Needs Met by the Course: Currently, graduate-level trainees in the TMC have few opportunities to work in teams in which they can apply their skills to real-life business ventures. Courses that are open to all across the TMC offered by the Rice Alliance have provided students their first (101) introduction to the field, and this course offers the next level of intense immersion for practical execution of a life science technology-based startup in Houston (301). Dr. Jack Gill’s and Dr. Robert Ulrich’s course (MGMT/BIOE 633), has become a flagship course for life science entrepreneurship at the TMC, as it demonstrates the individual roles of physicians, scientists, engineers and business majors in high-tech startup companies.
BioVentures is a follow up course to MGMT/BIOE 633 so that students and postdocs can define their business concepts, learn practical skills to seed and start their ventures. *This Course is a collaboration between UTMB, Rice U, GCC and Enventure*

**Term/Dates Offered:** This first pilot run of the class is being held for 10 weeks from February, 26th–May, 2nd. Formal class will be held once a week for 3 hours in the BRC.

**Pre-requisites:** Applicants will be required to have taken at least 1 course on life science entrepreneurship or device development/intellectual property management prior to enrolling for this course. Dr. Jack Gill’s and Dr. Robert Ulrich’s course (MGMT/BIOE 633), on life science entrepreneurship will fulfill this pre-requisite. Students will be asked to complete a questionnaire and provide a short paragraph justifying their enrollment into the course. The course director(s) will review all applications and select the top candidates for the course based on their application and 10 minute phone interview.

**Proposed Class Size:** Maximum 20 students. Students must be at least a 3rd year graduate student, MBA student, postdoctoral fellow, or medical trainee enrolled in active life science research programs or clinical fellowship programs at one of the TMC institutions:
1. University of Texas Health Science Center
2. Rice University
3. University of Texas Medical Branch Galveston
4. University of Texas M.D. Anderson Cancer Center
5. Baylor College of Medicine
6. Texas A&M IBT
7. University of Houston

**Course Material & Resources:** Course materials will be shared electronically through email or a shared Dropbox Folder.

**Textbooks & Supplemental Reading:**

- *Term Sheets & Valuations - A Line by Line Look at the Intricacies of Term Sheets & Valuations* (Bigwig Briefs) by Alex Wilmerding, Aspatore Books Staff and Aspatore.com

**Intellectual Property:** The course will provide access to pre-screened patents, patent applications, or disclosures related to novel therapeutics, diagnostics, medical devices or life science research tools. Students may develop their business concepts based on these inventions.
The Students will NOT be restricted to working on this pre-vetted intellectual property, but encouraged to conceptualize commercial applications of their own respective research projects.

**Contemporary Examples of Early Stage Life Science Companies:** Access to 10-15 early stage business concepts, executive summaries, investor presentations and/or business plans will be provided. Rice Alliance for Technology and Entrepreneurship has graciously provided access to life science companies. All of these companies were finalists in the Rice Business Plan competition. *All student teams should use these documents as a guide to craft their 15 minute investor presentations and executive summaries.*

**Mentors:** Each student team will be guided by an experienced life science executive with domain specific knowledge. You will be assigned a primary mentor, a student mentor and have ad hoc access to secondary mentors. Remember the role of a mentor is to guide, provide feedback and access to resources. They are NOT the “CEO” of your business concepts.

You will also be assigned a student mentor. The student mentor has previously taken this course and is available to further guide you. The Secondary Mentors will be available on an ad hoc basis to solicit regulatory, clinical and other entrepreneurial advise.

**Grading Criteria:** Class is Pass/Fail. Grade will be based on:
1. Class participation
2. Executive summary
3. Optional: 60 min team detailed presentation (or simply turn in the final Business Plan)
4. Final 15 minute presentation of group project judged by a panel of distinguished judges.

These final projects should ultimately allow the students to define a commercial development plan for either development of a new business, or form the basis of securing alternatives to equity financing through government research grants such as SBIR/STTR grants. Additionally, successful teams would be encouraged to compete in business plan competitions held at UT-Austin, Rice University, etc.

**Confidentiality:** Students must ONLY discuss non-confidential information during the class. In order to exhaustively conduct technical diligence students will directly be responsible to execute confidentiality agreements from the source institutions. All Students will be required to sign the Honor Code in Appendix A.
Course Directors

**Upendra Marathi, PhD, MBA**
Dr. Marathi is the founder, investor, and an inventor of 7 Hills Pharma LL. He also serves as the Senior Vice President at PLx Pharma Inc. where he has led the development of three novel pain and cardiovascular drugs. One product has recently been approved by the FDA. He has helped raise over $50 million in equity financing, and has been awarded $3.5 million in translational research grants. He co-developed one of the first genetically modified stem cells to improve bone marrow function in chemotherapeutic patients. He was previously with BCM Technologies, the venture subsidiary and incubator for the Baylor College of Medicine where he was involved in the founding and launch of several biotechnology companies. Prior to BCMT, Upendra was a post-doctoral fellow at St. Jude Children’s Research Hospital and M.D. Anderson Cancer Center, and earned a Ph.D. in Pharmacology from Loyola University Chicago. Upendra has an M.B.A. from and served on the Faculty of Rice University.

**Stan Watowich, PhD.**
Dr. Watowich is Associate Professor in the Department of Biochemistry and Molecular Biology at the University of Texas Medical Branch at Galveston (UTMB). His current research efforts merge advanced computational and structural biology approaches to develop treatments for infectious diseases. He was a founding member of UTMB’s renowned Sealy Center for Structural Biology, launched UTMB’s Molecular Therapeutics Initiative, spearheaded UTMB’s recent Innovation Challenge, and developed the "Business Innovation for Successful Entrepreneurship” course in partnership with UT-Austin McCombs School of Business. He serves as consultant for drug discovery projects in developing countries, most recently working with scientists in Colombia to discover new drugs to combat Leishmaniasis. In addition, he founded Ridgeline Therapeutics and serves as Research Director for the Southwest Electronic Energy Research Foundation. He received his B.A. from Carleton College, his Ph.D. from University of Chicago, and did post-doctoral studies at Harvard University before migrating south and joining the faculty of UTMB.

**Stacey Kalovidouris, PhD**
Dr. Kalovidouris is the Executive Director of Rice University's Institute of Biosciences and Bioengineering (IBB). In this role, she facilitates cross-disciplinary research and education, fosters ties with the Texas Medical Center, creates partnerships with industry and promotes the translation of research. She brings 17 years of experience working at the forefront of early stage scientific advances and discoveries. Recently, Stacey was selected as a member of the prestigious Kauffman Fellows Program, Class 19. Stacey is an inventor on a patent for a carbohydrate-protein method of inducing neuronal growth and has published research papers in the diverse areas of nanotechnology, glycobiology, immunology, neuroscience, and drug delivery of cancer therapeutics. Prior to becoming IBB’s Executive Director, Stacey was a Senior Scientist for Calando Pharmaceuticals, a biopharmaceutical company providing targeted therapeutics for the development of nanoparticle drug formulations. Stacey completed her post-doctoral training at the California Institute of Technology and holds a PhD in Chemistry from the University of California at Los Angeles. She received her BA degree in Biochemistry from Swarthmore College.

**Simran Madan**
Ms. Madan is an HHMI Med into Grad pre-doctoral fellow in the Translation Biology and Molecular Medicine Program at Baylor College of Medicine. She is a member of the core team of Enventure, a Houston based non-profit focused at providing resources to early stage medical and life science companies and educating and building the entrepreneurial community in Houston. She has been one of the leading members in the conception and development of this course. Simran was a student in the first offering of the course in 2014 and was a member of the Riha Life team, which tied for first place on the final pitch day. She received her B.S. in Cell and Molecular Biology from the University of Texas at Austin. Her current research focus is urea cycle disorders and osteosarcoma. She has received a CPRIT pre-doctoral fellowship for her work on osteosarcoma.
Primary Mentors

Steve Banks, MBA, Venture Partner of S3 Ventures.
Mr. Banks is a pioneer in venture capital, arising from his distinctive track record in backing legendary venture capital firm Kleiner Perkins and co-investing in several of their outstanding companies — such as Genentech, Hybritech and Tandem — while serving as vice president of venture capital at The Hillman Company. The Hillman Company was the founding limited partner of Kleiner Perkins, and Mr. Banks served as the liaison for the first three KPCB partnerships. Steve is also a pioneer in the life sciences. In 1988, he became president of BCM Technologies (“BCMT”), where he was involved in the formation of more than 30 new technology companies spun out of the Baylor College of Medicine (“BCM”), including: Lexicon (LEXG), GeneMedicine (VLTS), ForeFront (SKIL), Triplex (AGEN), PrimaCis (MDLIQ) and Zonagen (ZONA). He also established BCMT’s venture fund and led BCMT’s venture advisory board, consisting of prominent investors such as Oxford Biosciences, Domain Associates, Versant, VenRock, EuclidSR, ARCH, J&J Development and Polaris. Steve is the recipient of the 2012 Dai-Shan Wong Memorial Achievement Award from Gulf Coast Medical Device Manufacturers. This annual award is presented to the person who exemplifies the same spirit and enthusiasm as that of Dia-Shan Wong. Mr. Wong was dedicated to the growth and regulatory education of Houston’s life science community. Steve earned a BS in physics from the Massachusetts’ Institute of Technology (MIT) and an MBA from the Harvard Business School. He taught a graduate venture capital course at Rice University during the years 1992 to 2005.

Tim McGrath, MS, Manager, Business Development, AM Biotech.
Mr. McGrath is the Manager, Business Development for AM. As the former CEO of Xeotron he raised over $4M from corporate investors and managed the sale of Xeotron to Invitrogen. While President of Sigma-Genosys, sales grew from $2M to over $40M and he negotiated numerous licenses and marketing agreements. He managed the sale of Genosys to Sigma-Aldrich. Sigma-Genosys was started based technology developed and licensed from the Baylor College of Medicine. Mr. McGrath has a B.S. in Zoology and an M.S. in Biochemistry from Texas A&M University.

David Franklin, co-Founder and Managing Director, Houston Health Ventures
Mr. Franklin has over 10 years of experience in business management consulting, corporate strategy, operations, marketing, business development, sales, and venture capital. He currently serves as Executive Vice President at Consumer Media Network (CMN), LLC, a lead generation company. Previously, David was Co-founder and Managing Partner at DCF Ventures, LLC. DCFV provided feasibility analyses, market analyses, company incorporation, university licensing, startup consulting, interim management, grant writing, and fundraising services. In this role, David also served as CEO pro tem for CytoScale Diagnostics, LLC, RadMit Pharma, LLC and FloVision, LLC. At DaVita, Inc. David served as a Corporate Strategy Associate where he formulated market growth and strategic operations plans, led the national clinical outcomes team for @Home, increased IT and clinical research resources and created new clinical reports/scoring. He also acted as Interim VP of Marketing for @Home. Prior to DaVita, David was a Business Management Consultant at Accenture. David holds his MBA from UCLA Anderson where he was a Venture Capital, Young Presidents’ Organization (YPO), and Technology and Innovation Partners (TIP) fellow. David received his B.S.E. in Bio-Medical & Electrical Engineering with minors in Economics & Chemistry from Duke University. David was also part of Devil’s Delivery Service, Inc., a food delivery business owned by 42 student shareholders generating over $850K in annual revenues. David was elected to Comptroller, CFO, and CEO positions and was responsible for increasing profitability 30% as CEO. David completed internships at Siemens AG; General Electric Co. (US Patent #6,789,427 Phased Array Ultrasound); and Procter & Gamble Co. David enjoys water and snow skiing, golf, and flying remote control airplanes.

Peter Vanderslice, Ph.D., Chief Scientific Officer, 7 Hills Pharma LLC.
Dr. Vanderslice is a co-founder, investor, and an inventor of 7HP technology. Dr. Vanderslice is also the Associate Director of Molecular Cardiology at the Texas Heart Institute. He is an experienced pharmaceutical executive that has indentified and developed 4 clinical stage compounds, managed joint ventures, and help raise of $100 million in equity financing. He has translated numerous approaches to therapeutics targeting cell adhesion molecules and chemokine receptors for the treatment of inflammation, cancer and cardiovascular disease into pharmaceutical development programs. Peter has authored numerous peer-reviewed publications focusing on the biological function and therapeutic targeting of cell adhesion and trafficking. The extensive experience in cell adhesion is critical to validating the 7H lead compounds for use in hematologic cancers, and stem cell transplant and other indications. He is a co-inventor on 5 patents, including the 7HP technology. At Encysive Pharmaceuticals, Inc. he successfully led discovery and development programs and a joint venture with Merck & Co in multiple sclerosis, asthma, psoriasis, and inflammatory bowel disease. He has a Ph.D. in Biochemistry from the University of Texas at Austin.
Richard Dixon, Ph.D., Director, Wafic Said Molecular Cardiology Research Laboratories, Texas Heart Institute

Dr. Dixon is the Director of the Wafic Said Molecular Cardiology Research Laboratories, Texas Heart Institute. He is an experienced pharmaceutical executive that has founded and invested new ventures and led the development of numerous commercial programs, which led to 4 approved commercial products including Argatroban, Crixivan and Singulair. He co-founded and served as CSO of Encysive Pharmaceuticals (ENCY) and sold to the business to Pfizer for ~$400 million. Prior to that, he held various management positions, including head of the molecular biology department at Merck and Co (MSD). His research groups have produced more than 10 new chemical entities which have entered human testing. He has a Ph.D. in Virology from Baylor College of Medicine and conducted postdoctoral research at Johns Hopkins University School of Medicine in the laboratory of Dr. Daniel Nathans, the 1978 Nobel Laureate in Medicine. The group cloned and characterized a G-protein coupled receptor, the beta2 adrenergic receptor (resulted in 2012 Nobel Prize in Chemistry to Kobilka and Lefkowitz). He has served on the review boards of Texas Emerging Technology Fund, the National Institutes of Health and the National Science Foundation.

Glauco R. Souza, President, CSO and co-founder, Nano3D Biosciences, Inc.

Dr. Souza is the President, CSO, and co-founder of Nano3D Biosciences, Inc. (n3D). He has led the commercialization and development of n3D’s magnetic 3D bioprinting and magnetic levitation technologies. Prior to co-founding n3D, Dr. Souza was an Odyssey Scholar at The University of Texas MD Anderson Cancer Center. During his work at MD Anderson, he applied a multidisciplinary approach to developing nanotechnology tools for tissue targeted imaging, gene delivery, and tissue engineering. Towards the end of his Odyssey Scholarship, in collaboration with Drs. Tom Killian and Rob Raphael from Rice University, the genesis of magnetic 3D bioprinting and levitation took place. Now, his mission is to advance the commercialization of magnetic 3D bioprinting and 3D cell culturing into a routine laboratory tool that will measurably improve the drug discovery process, cancer research, and regenerative medicine. Results using n3D’s technologies have been reported in various scientific journals, including Nature, Nature Nanotechnology, Nature Protocols, and Nature Reviews Cancer. Recently, Glauco was an invited speaker at TEDx Houston, where he shared his thoughts and experience on resonating aspects between science, levitating cells, friendship, and sports as key ingredients for scientific discovery and the entrepreneurial process. He is also one of the inventors in all six patent applications related to n3D’s technologies and his research has been funded by grants from National Science Foundation (NSF), Department of Defense (DOD), National Institute of Health (NIH), Center for Advancement of Science in Space (CASIS), and State of Texas Emerging Technology Fund (TETF). Dr. Souza attended the George Washington University in Washington DC (GWU), where he received B.S. in Chemistry and M.S. and Ph.D. in Physical Chemistry.

Student Mentors

Brian Dawson

Brian has worked in bioinformatics and microCT imaging at Baylor College of Medicine for over 10 years. Prior to arriving at Baylor, he assisted in the development of the DiversiLab automated system for bacterial identification at the BCMT startup company, Bacterial Barcodes. For the 2014 Bioventures course, he designed and prototyped an airway clearance vest as a member of the Riha Life team that presented the technology during the final pitch day, tying for first place. He is currently completing a Master’s in Health Informatics program at UTHealth.

Jessica Dobbs

Ms. Dobbs is a Ph.D. Candidate in the Rice University Bioengineering Department. In 2010, Jessica earned a B.S. in Cellular Molecular Biology with a concentration in Biomedical Engineering from the University of Michigan. Jessica is currently working on her thesis in Rebecca Richards-Kortum’s Optical Imaging and Spectroscopy Laboratory. Her research is primarily focused on developing automated algorithms to quantitatively analyze optical images of human breast tissue. In 2014, Jessica worked as an intern with Fannin Innovation Studio, a Houston-based life science technology commercialization firm. During her internship, she led work on a new indication for the portfolio company, Acelerox, and conducted diligence on several other potential indications. Jessica participated in the 2014 Bioventures course and was a member of the Riha Life team, which tied for first place on the final pitch day.

Bala Raja, Ph.D.

Dr. Raja holds a B.Tech degree in Chemical Engineering from the National Institute of Technology-Tiruchirappalli (top-ten Indian engineering school) and a Ph.D. in Chemical and Biomolecular Engineering from the University of Houston (UH), where he developed a microfluidic optical biosensor platform and a nucleic acid-based point-of-care assay for the detection of bacterial pathogens. He is a co-founder and the first full-time employee of Luminostics, a UH spin-off developing smartphone-based rapid medical diagnostics. As the Entrepreneurial Lead on a National Science Foundation Innovation Corps award, Bala investigated the commercial landscape surrounding Luminostics’ technology, and has since been focused on fundraising and prototype development.
Secondary Mentors

William Clifton, MD
Dr. Clifton is a startup consultant and life science entrepreneur in Houston. Will earned a degree in Biomedical Engineering from USC where he joined his first startup, commercializing a novel glucose sensor. After making Houston his home in 2007, Will received his MD from Baylor College of Medicine. Currently, Will is the Director of Research and Development for Procyrion, developing a miniature heart assist pump implanted without surgery. Will also consults for seed-stage startups to help them tell their story, including MolecularMatch, NanoLinea, Anaxiom, and Nano3D. Finally, Will is the founder of Enventure, a grass-roots community focused on growing and educating Houston's medical entrepreneur community. Enventure connects young and aspiring entrepreneurs with experienced entrepreneurs and investors to accelerate the growth of Houston's medtech startup scene. Enventure's educational programming and one-on-one mentorship has launched four life science startups in Houston this year.

Lindsay Denault, MBA
Ms. Denault joined the Texas Medical Center as a Business Strategist, with a focus on innovation related initiatives. Her background was in biomedical engineering and civil litigation, and she moved to Houston in 2012 to attend Rice University’s Jones Graduate School of Business. Lindsay interned with the Houston Area Translational Research Consortium (HATRC) and the Rice Alliance for Technology and Entrepreneurship where she assessed healthcare products for commercial potential and worked with physician entrepreneurs to build a business around their technology. Prior to joining the TMC, Lindsay served as Assistant Managing Director of Operations for OwlSpark, Rice University’s accelerator program, and was responsible for overseeing the summer curriculum, building relationships with community partners and mentors, coaching participating companies, and coordinating a joint demo day in collaboration with the University of Houston’s RED Labs accelerator program. She holds a B.S. in Biomedical Engineering from Virginia Commonwealth University and an MBA from Rice University.

Wesley Long, M.D., Ph.D.
Dr. Long board certified clinical pathologist with a focus in clinical microbiology. He did his MD/PhD at UTMB and his residency at Houston Methodist. He then joined Methodist as faculty. His current research is heavily focused in whole genome sequencing and the molecular pathogenesis of Staphylococcus aureus. His PhD work was in the molecular pathogenesis of Ehrlichia chaffeensis, an emerging tick borne disease.

Joanna Nathan
Ms. Nathan is Director of Research & Development at Saranas and Chief Operating Officer and co-founder at NanoLinea. These companies are interventional cardiology medical device startups spun out of collaborations between the Texas Heart Institute and Rice University. Through these startup roles she has designed and conducted pre-clinical trials, developed regulatory and clinical strategies, and taken ideas from proof-of-concept to prototype to product. Joanna received both her B.S. and Master’s in Bioengineering at Rice University in Houston, TX. Joanna is a founder of Enventure, an organization focused on growing and educating Houston’s life science entrepreneurship community.

Steve Reyes, Ph.D.
Dr. Reyes has been involved with all aspects of clinical operations for a development-stage pharmaceutical company developing a portfolio of novel drug products. His broad experience encompasses the full range of clinical trial operations, from protocol development to final study report. Not only has he been a technical contributor to study design, data analysis, interpretation, and presentation, but he also had a diverse set of operational responsibilities across the spectrum of clinical trial management disciplines (eg. thought leader development, site management, clinical supplies, biostatistics and data management, and vendor qualification and oversight). He has also taken on substantive Quality roles, including vendor qualification audit tracking, clinical trial source data verification, and QC of study reports. He has been an important part of a clinical and quality team that lead to a first-cycle eCTD NDA approval of PL2200, including completion of pivotal trials for a GI safer aspirin product. He is an experienced cell biologist that discovered and validated a pathway to reduce the invasiveness of glioblastoma multiforme, an aggressive brain cancer. Steve has earned his PhD in Cancer Biology at MD Anderson where he was a R.E. Bob Smith Research Fellow.

Estela Von Chong, M.S., RACS—Bioventures Regulatory Corps
Ms. Von Chong is a Regulatory Affairs professional with three years of experience working in the biotech and pharmaceutical industry. Currently, she is the Regulatory Affairs Manager at PLx Pharma LLC, where she supports all aspects of regulatory and quality operations including the management, preparation and submission of regulatory reports and correspondence for both INDs and supplemental NDA submissions for an approved OTC product, performs regulatory analyses of drug labeling and packaging, proprietary naming and new drug product exclusivity. She has also collaborated in the development of regulatory strategies and implementation plans for the preparation of line extensions for the company’s lead product. Prior to working at PLx, Estela was a Compliance Specialist at QACV Consulting, LLC where she provided quality assurance, compliance and validation consulting to
FDA-regulated industries. She has experience in computer systems compliance and validation, as well as experience in the development of quality management systems and strategies for compliance with Good Clinical, Manufacturing, and Laboratory Practices quality standards. Estela received her Master’s in Biotechnology as well as her B.S. in Biomedical Engineering from Texas A&M University. Estela is also a member of the Regulatory Affairs Professional Society, and she has achieved the RAC-US Credential.

Invited Speakers

Mitch Eggers, PhD, MBA, Adient Medical.
Dr. Eggers founded and currently serves as the CEO of a medical device company developing the first totally absorbable vascular filter for the prevention of pulmonary embolism. He has 27 years experience developing biomedical devices and founding startups including Genometrix (first electronic DNA chip in collaboration with MIT and BCM), GenVault (first automated dry-state DNA archiving system) and Adient Medical. Collectively he has secured $30M in top-tier venture capital, $20M in government-sponsored research, $10M in corporate partnerships, and $5M in angel financings for his inventions protected by over 30 issued patents. His technology resides in numerous products commercialized by small and large companies that have included General Electric, Motorola, Beckman-Coulter, and Sigma. Mitch’s second company was awarded “100 Most Innovative Companies” worldwide by Red Herring (magazine) and his absorbable filter device from his third company was awarded the top prize in Bioengineering and Surgery by the American Medical Association. Mitch earned his BS, MS, and PhD in Electrical Engineering from Texas A&M University, MBA from Rice University, and has completed MD preclinical studies at Baylor College of Medicine.

Nancy T. Chang, Ph.D.
Dr. Chang has more than 30 years of experience in the pharmaceutical and biotechnology industry. For more than 20 years, Dr. Chang served as the Co-founder, President, CEO and Chairman of Tanox, which was sold to Genentech in 2007. Today, she serves as the President of Apex Enterprises, Inc., an investment management company with a major focus on healthcare investments. Previously, she was the Chairperson and Senior Managing Director of Caduceus Asia Partners at OrbiMed Advisors L.L.C. Prior to founding Tanox, Nancy held several leadership positions at Centocor, now a division of Johnson and Johnson. She was also an Associate Professor at Baylor College of Medicine, and before that, she worked at the Roche Institute of Molecular Biology. She has served on the boards of Charles River Laboratories International, Inc., Applied Optoelectronics Inc. and others. More recently, she joined the board of directors of Ansun, a San Diego-based biotech company. Nancy was a member of the board of directors at the Biotechnology Industry Organization (BIO) and BioHouston. She also was a Director at the Federal Reserve Bank in the Dallas Houston Branch, and was a Director for Project Hope. Nancy was inducted into the Texas Science Hall of Fame in 2001 for exemplary achievement in science. She is the recipient of many awards, has published more than 35 scientific papers and holds seven patents. Dr. Chang received her Doctorate in Biological Chemistry from Harvard University.

Jason E. Moore, MS, MBA, RAC, Vice President, Camargo Pharmaceutical Services.
Mr. Moore has more than 15 years of biopharma industry experience, having managed a spectrum of new drug development, regulatory, quality, medical/technical writing, and successful SBIR/STTR grant programs for both established and emerging biopharma companies. Jason has led programs encompassing a full spectrum of regulatory strategy development and filing activities (IND/NDA/BLA), domestic and international clinical trials, and nonclinical and CMC-related projects for both small molecule and biological drug products. He has managed strategic alliance and M&A activities and employed financial modeling and quantitative risk assessment tools for product portfolio management and partnering. Among the previous companies for which Jason has worked are Amgen, Antigenics, Aronex Pharmaceuticals, and Introgen Therapeutics. He earned an MS in Science and Technology Journalism from Texas A&M University and an MBA from the C. T. Bauer College of Business at the University of Houston. He has been a Visiting Scholar in the Professional Program in Biotechnology at Texas A&M University and been an instructor in the Life Science Entrepreneurship Program at Rice University.

Sundeep Mattamana, Associate Director for Technology Transfer
Dr. Mattamana joined the Office of Technology Transfer at UTMB in 2004. He is responsible for evaluating Invention disclosures, marketing and negotiating license agreements and assisting in the formation of startups. Prior to joining OTT, he worked as the Chief Market Research Analyst for Sucampo Pharmaceuticals, a biotechnology company in Bethesda, MD. His main role was conducting primary and secondary marketing research on products in the pipeline, and providing support to licensing and business development activities. Sundeep holds a Ph.D in Chemistry from the University of Maryland, College Park and a MBA in Marketing and Information Technology from the University of Delaware.

Jacob Setterbo, Ph.D., Director of Grants, Paradigm Partners
Dr. Setterbo is Director of Grants at Paradigm Partners, where he helps life science companies obtain non-dilutive funding. Jacob focuses on small business grants (SBIR/STTRs) from the National Institutes of Health (NIH). He has provided consultation and technical writing for various therapeutic areas across the spectrum of NIH’s interests, including pharmaceuticals, medical devices, digital health, and health care delivery. Jacob assists with experimental design and commercialization components of each project. Jacob regularly vets early-stage companies with respect to innovation and commercial potential to determine their applicability for grants. As part of this process, Jacob evaluates business plans, market analyses, existing literature, patent portfolios, and Food and Drug Administration (FDA) meeting minutes. Jacob has also served as a reviewer for the Texas Emerging Technology Fund and for multiple journal articles. Jacob received a Ph.D. in Biomedical Engineering from University of California, Davis and a B.S. in Civil Engineering from The University of Texas at Austin.

**Matt Browning, J.D. Ph.D., Partner, Ramey & Browning PLLC**

Dr. Browning is a founding partner of Ramey & Browning, PLLC. Dr. Browning’s practice concentrates on obtaining patents, trademarks, copyrights, licensing intellectual property and conducting reexamination and post grant review of issued patents. He also has been involved assisting many startup companies develop their patent portfolio. Additionally, Matt has extensive experience preparing opinions on intellectual property rights regarding validity, infringement and freedom to operate. Prior to becoming a founding member of Ramey & Browning PLLC, Matt was the intellectual property manager at a major academic research institution.

**Atul Varadhachary, M.D., Ph.D., Managing Partner, Fannin Innovation Studio**

Dr. Varadhachary is Managing Partner at Fannin Innovation Studio (formerly AlphaDev, LLC.), Houston’s leading early-stage life sciences development group. Fannin helps commercialize innovative technology originating in the Texas Medical Center and elsewhere. He works closely with innovators, contributing active management and seed capital, and leverage non-dilutive and grant funding from the NIH, philanthropy, and the state of Texas to multiply the return on investor dollars. Atul brings over two decades of experience in life sciences and healthcare in both corporate and entrepreneurial settings. Before Fannin, Atul served as President of U.S. Operations at Reliance Life Sciences (RLS), part of the Reliance Group, India’s largest private sector enterprise with over $70 billion in annual revenues. Atul served for nine years as President & COO of Agennix, Inc., a late-stage biotechnology company where he led advancement of Agennix’s lead molecule from preclinical studies into pivotal Phase 3 human studies and helped lead a successful sale of the company. Atul also served as Senior Engagement Manager at the global management consulting firm, McKinsey & Co. Atul has served as an Adjunct Professor at the Baylor College of Medicine at the Jones Graduate School of Management at Rice University, and the University of Texas School of Public Health. He serves on the Life Sciences Advisory Committee of the Houston Technology Center, on the BioHouston Advisory Board and on the boards of the Center for Public Policy Priorities (CPPP) and of several private companies. He served for four years on the Board of Managers of the Harris Health System (Harris County Hospital District), and has served on the University of Houston Biotechnology Industrial Advisory Committee, and on the Board and as President of the Indo-American Chamber of Commerce of Greater Houston. He served for five years as President of Pratham USA and is on the Board of the Pratham Education Foundation, one of the largest educational non-profits in the world. Atul received his medical training at the University of Bombay. He earned a Ph.D. in Physiology followed by a postdoctoral fellowship in Biological Chemistry, both from the Johns Hopkins School of Medicine in Baltimore, where he also served as a member of the Medical School Council and as founding President of the Johns Hopkins Postdoctoral Association.
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| 1. 26<sup>th</sup> February 2015 | - Class Introduction & Expectations (UM, SW, SM)                                              | Luminostics – Opening talk – 15 min. pitch Mitch Eggers, Ph.D. Adient Medical conception, investor presentation and seed round terms. | • Select IP you feel is most commercially viable and attractive  
• Prepare a 3-5 min. pitch for next class (oral, no slides)  
• Review terms of seed/series A rounds of 3-4 new companies  
• Read "Term Sheets and Valuations" |
| 2. March 5<sup>th</sup>, 2015 | - Case study of an early stage financing and review of VC term sheet.  
  - Each student will a present 3 min elevator pitch of their business concept and attempt to recruit a team.  
  - Watovich to lead the auction and build 4 team of 4 students. | Steve Banks, MBA  
Current financing market place. What’s the basis of new venture today? | • Review Business Plans from Rice Competition  
• Determine what your product is.  
• Is there a market for your product? Competition?  
• Come up with questions about what FDA regulations you need to get through to bring your product to market for next week. |
| 3. March 12<sup>th</sup>, 2015 | - Teams present their Product/Competition  
  - Target Product Profiles  
  - FDA Regulations - Define regulatory and development milestones for value creation  
  - Case Study, e.g. PL3100, naproxen—review SBIR commercialization plan for PL3100 | Jason Moore, MBA  
Defining your product and the determining the regulations around bringing it to market | • Define Target Product Profile, Competition, Comparable transactions (licensing/financing)  
• Define regulatory and development path milestones/budget  
• Review licensing term sheets for next week’s lecture |
| 4. March 19<sup>th</sup>, 2015 | - How to negotiate and get started with your IP. Mock negotiation on a tangible product.  
  - Teams present Target Product Profile, Competition, Comparable transactions, Development path, Milestones and Budget | Sundeep Mattamana, Ph.D., MBA  
Anatomy of a licensing agreements | • Complete competitive analysis  
• Refine Target Product Profile, Developmental Milestones  
• Define regulatory path & “pivotal” endpoint.  
• Think about your team’s licensing term sheet. |
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| 5. March 26th, 2015 | - Defining value creating milestones.  
- Negotiating a deal to finance your big idea  
- Present 15 min seed round presentation | **Casey Cunningham**  
Setting and meeting milestones for value creation. What is the basis of a venture backed NewCo today? | - Financing strategy: Value creating milestones to starting and building the business post seed round, and budget  
- Regulatory strategy/path defined due                                                                                                                                                                                                                                                                                                      |
| 6. April 2nd, 2015 | - Present 15 min seed round presentation  
- Teams worked with their mentors during this class session | **Nancy Chang, Ph.D.**  
Tanox from creation to series A. What is the basis of a new venture today? | - First Draft of Executive Summary due  
- Detailed 60min presentation due                                                                                                                                                                                                                                                                                                           |
| 7. April 9th, 2015 | - Present 15 min seed round presentation | **Tim McGrath** – Genosys  
Lessons learned in the growth of a life science service/tools business | - Received comments/feedback from mentors on 1st drafts                                                                                                                                                                                                                                                                                  |
| 8. April 16th, 2015 | - Present 15 min seed round presentation | **Atul Varadhachary, M.D.**  
Pulmotect Inc. Overview and Review of Series A financing. |                                                                                                                                                                                                                                                                                                                                                                                                  |
| 9. April 23rd, 2015 | - Present 15 min seed round presentation | **Matt Browning, J.D.**  
How to start and seed a NewCo-The Documents?  
**Jacob Setterbro, Ph.D.**  
How to file an SBIR grant? | - Revised Executive Summary due  
- Revised 60 min. presentations due (Optional)                                                                                                                                                                                                                                                                                          |
| 10. Friday, May 1, 2015 | - Final investor presentations (15 min) and feedback  
- Pass/Fail determined by the investors  
- Reception | **Judges: TBA** | This event will be held at TMCx                                                                                                                                                                                                                                                                                                         |
BioVentures Honor Code:

To achieve its objective of fostering the successful creation of technologically oriented, early stage enterprises, the BioVentures Course (BVC) must enjoy the trust and respect of the business and investment community, and its Students, Student Teams, and Mentors must enjoy mutual trust and respect.

Consequently, the BVC requires that Students, Staff, Faculty, and Mentors with whom it works observe the highest possible standards of ethical conduct in all aspects of their conduct inside and outside the BVC. The guidelines provided herein are intended to highlight the ethical considerations that are of particular concern to the BVC, and to those individuals and enterprises who seek access to such capabilities.

They should not, however, be viewed as an exhaustive catalog of the ethical obligations. Each individual is expected to supplement these guidelines with his or her own good judgment, sound moral intuition, and business sense in all dealings with sources of intellectual property exposed as a result of BVC activities.

(a) Information specified as confidential acquired in the course of the BVC’s activities concerning (i) actual or prospective companies or (ii) class speakers or their respective businesses, shall not be disclosed to anyone other than such participants in the BVC activities who agree to maintain the confidentiality of such information.

If there is reason to believe, however, that the person or persons from or through whom such confidential information was obtained would object to further dissemination of that information, the person to whom the information was disclosed shall make no further disclosure of the information to anyone.

In addition, each individual shall take reasonable precautions to maintain the confidentiality of any confidential information that he/she obtained through participation in the BVC including exercising reasonable care to prevent others from obtaining such information.

(b) No one shall use any information, whether confidential or not, acquired as a direct result of his/her review of confidential information, to the disadvantage of the person or entity from who it was obtained.

(c) No one shall use any confidential information about any person or entity acquired as a result of his/her activities for his/her own advantage without the consent of such person or entity.

(d) Every one shall fully and promptly disclose any situation whereby, through having an economic interest in any presenting company, he/she might be perceived as having a potential conflict of interest in the absence of such full and prompt disclosure.
(e) Under certain circumstances, deviations from the foregoing guidelines may be acceptable. The student or mentor who wishes to deviate from the guidelines, however, is obligated to make adequate disclosure to, and obtain the consent of the Course Director.

I understand and agree to follow the BVC Ethics Policy, as described above.

In order to maintain ongoing confidentiality, one month after this semester is over, I agree to delete any and all company information from my computer, e-mail, and storage devices including cloud-based. I will e-mail the Course Director, certifying that I have done this, by a mutually agreed upon date.

___________________________________________
Signature

___________________________________________
Printed Name

___________________________________________
Status (i.e. Student, Faculty, Staff, Mentor)