



## **FINAL SYLLABUS**

### **FINC-GB.3186.30 | Project Finance and Infrastructure Investment**

**Tuesdays 6:00 - 9:00 pm**

**April 2 - May 7, 2019**

**Classroom: KMC 3-90**

**Professor Paul Tice ([ptice@stern.nyu.edu](mailto:ptice@stern.nyu.edu), 908-872-3722)**

---

### **Course Description**

This six-session mini-course focuses on the infrastructure and project finance market, one of the most dynamic and challenging areas in the global financial architecture. Infrastructure provides the connective tissue for most economies and societies and is a key dimension of global development; its impact reaches deep into the broader economy, with important implications for overall living standards and social progress. Based on McKinsey estimates, the world will need to spend an aggregate \$69 trillion (at 2017 prices) between 2017 and 2035 to keep up with infrastructure demand—both from developed OECD countries and the emerging markets—or roughly \$3.7 trillion per year in real terms, which is up from an average of \$1.9 trillion per year over 2000-2015. To meet such infrastructure demand, a significant amount of funding—mostly in the form of highly-structured, asset-based project financings—will need to be raised in the coming years.

The course is designed to provide students with an introduction to the expanding and rapidly-changing infrastructure and project finance market and an understanding of the myriad risks involved in developing large-scale infrastructure projects around the world. Working through actual cases and examples drawn from the markets, the course seeks to develop the technical and analytical skills—both quantitative and qualitative—that are required to evaluate, structure and finance complex infrastructure projects, while also tracing the historical development of the infrastructure and project finance market, with a particular focus on the various bottlenecks now facing the market in the wake of the 2008 global financial crisis.

The course is also intended to provide students with an introduction to the variety of roles available in the field of infrastructure and project finance including: commercial bank project lender, financial/structuring advisor, rating agency analyst, sell-side research/debt capital markets analyst, buy-side debt investor, investment banker and infrastructure private equity sponsor, as well as related roles in the project design, engineering, construction and consulting industries and legal and accounting professions. For those interested in pursuing infrastructure and project finance as a career path, additional research and industry information sources are also provided for student reference and further follow-up.

---

## Course Method

The course subject matter will be taught through a combination of formal lectures, in-class exercises and class discussions of reading and case assignments. Given the idiosyncratic, credit-specific nature of the infrastructure sector, the course will emphasize a case-based analytical approach, using actual cases and market examples to illustrate important teaching points. Students are required to complete the assigned readings and cases before coming to class and should be prepared to discuss both during each session. Classroom discussions will be highly interactive and all students are expected to participate.

For each of two written case assignments, students are required to pair off in groups of two and submit jointly written case briefs answering the questions posed in the case (4-page maximum length). These write-ups should be handed in by each team at the start of the class.

There will be an in-class, closed-book final examination lasting approximately 90 minutes during the second half of the last session of the course. The final will be comprised of 50 multiple choice questions testing all of the concepts and topics covered throughout the course.

---

## Course Rules and Requirements

Students registering for this course should have successfully completed the Foundations of Finance course as well as the Economics MBA core course, while also having a basic understanding of corporate finance, financial statement analysis and the capital markets. Prerequisites may be waived with the consent of the instructor.

Students are expected to conform to all of the Stern Default Policies on attendance and punctuality, and to adhere to the NYU Stern Code of Conduct and New York University Policy on Academic Integrity for Students—specifically, with regard to plagiarism and other forms of cheating.

Open laptops will not be allowed in class. Text messaging, web browsing, audio/video recording or other use of cell phones will not be permitted. None of these devices or activities is necessary for this course.

Students are required to bring their name-signs to class and display them where they sit. Attendance will be taken at the start of each session. Class will start promptly at 6:00 pm and end punctually at 9:00 pm to be respectful of commuters and train schedules.

---

## Course Materials

All course reading and case study assignments will be available either through the NYU Bookstore or posted on *NYU Classes* (under “Assignments”) in advance. *NYU Classes* will be the main method of communication with students throughout the course. Copies of PowerPoint slide presentations used in class discussion will be posted on *NYU Classes* following each session.

The reading assignments for the course will be primarily drawn from the following textbook:

- John D. Finnerty, *Project Financing: Asset-Based Financial Engineering, Third Edition*. Hoboken: John Wiley & Sons, Inc., 2013. (Finnerty) (available through NYU Bookstore)

In addition, there will be three case study assignments for the course:

- *Cheniere's LNG Liquefaction Strategy: Pushing the Boundaries of the Project Finance Debt Market*, Tice, Paul, Ingo Walter and Matthew Tice. New York University Leonard N. Stern School of Business, 2014. (available through NYU Bookstore) (written submission required)
- *Replacing the Goethals Bridge: A Blue State Model for P3 Projects?* Tice, Paul. New York University Leonard N. Stern School of Business, 2019. (to be posted on *NYU Classes*) (written submission required)
- *The Dakota Access Pipeline Project*, Dorobantu, Sinziana, Ingo Walter, Patrico Cox, Alaris Dayzie and Kang Hun. New York University Leonard N. Stern School of Business, 2018. (available through NYU Bookstore) (read only)

Additional (mostly optional) readings will be assigned during the course and posted to *NYU Classes*. Also, faculty opinion on current events in the infrastructure and project finance markets can be accessed at: <http://www.stern.nyu.edu/experience-stern/faculty-research/index.htm>.

---

## Grading

Course grades will be weighted as follows: 40% Final examination, 40% Case briefs and 20% Class participation. The full range of grades will be awarded.

---

## Course Outline

The course is comprised of six three-hour sessions (including a 15-20 minute break each session). The final course outline is provided below.

\*\*\*\*\*

### **Session 1: Basics of Infrastructure and Project Finance (April 2, 2019)**

- Infrastructure: definitions, stakeholders, macroeconomic benefits, historical and projected requirements
- Key role of government in building and maintaining infrastructure assets
- Users versus free riders: Who pays for the cost of infrastructure?
- Key risks and mitigants in developing large-scale infrastructure projects
- Fundamentals of project finance as a tool for risk management

#### **Required Reading:**

Finnerty, Chapters 1-3

#### **Optional Reading:**

*Bridging Global Infrastructure Gaps*, McKinsey Global Institute, June 2016

*Bridging Infrastructure Gaps: Has the World Made Progress?*, McKinsey Global Institute, October 2017

\*\*\*\*\*

### **Session 2: Developing the Requisite Transactional Skill-Set (April 9, 2019)**

- Getting to FID: technical feasibility, economic viability and creditworthiness and financeability

- Financial modeling and returns analysis
- Legal and financial structuring
- Contract documentation and debt covenants
- Rating agencies and project credit risk

**Required Reading:**

Finnerty, Chapters 5, 7-11

**Optional Reading:**

*Rating Criteria for Infrastructure and Project Finance*, Fitch Ratings, August 24, 2017

\*\*\*\*\*

**Session 3: Sourcing the Appropriate Capital (April 16, 2019)**

- Project finance capital providers and market statistics
- Infrastructure as an asset class and alternative investment strategy
- Recent market innovations, current bottlenecks and regulatory roadblocks and possible solutions
- Repurposing the supranational and sovereign credit agencies and tapping into public pension funds
- Credit enhancement and piercing non-investment grade sovereign ratings ceilings

**Case Study Preparation/Discussion:**

*Cheniere’s LNG Liquefaction Strategy: Pushing the Boundaries of the Project Finance Debt Market* (submit written case brief at start of class)

**Required Reading:**

Finnerty, Chapter 4, 13

\*\*\*\*\*

**Session 4: Growing Reliance on the Private Sector (April 23, 2019)**

- Public sector constraints: politics, election cycles and fiscal budgetary considerations
- Evolution of public-private partnerships (P3s)
- The P3 project spectrum, key benefits and main drawbacks
- Comparative government infrastructure policies and best practices
- U.S. municipal finance market overview

**Guest Panel Discussion:**

Infrastructure Equity and Debt Capital Providers

**Required Reading:**

Finnerty, Chapter 16

**Optional Reading:**

*Infrastructure Investment Policy Blueprint*, World Economic Forum, February 2014

*Infrastructure Spending and Public-Private Partnerships*, Hudson Institute, March 2017

*Public-Private Partnerships (P3s): What Local Government Managers Need to Know*, ICMA, January 2018

*Public-Private Partnerships: Understanding the Difference Between Procurement and Finance*, Center for American Progress, December 8, 2014

*Assessing Claims About Public-Private Partnerships*, Center for American Progress, August 10, 2016

\*\*\*\*\*

### **Session 5: Fortifying a Stationary Target (April 30, 2019)**

- Assessing political and sovereign risk over long-term investment/planning horizons
- Governance, transparency and the rule of law
- Providing value to host governments
- Creeping versus outright expropriation
- Infrastructure investments in emerging markets versus developed countries
- National and supranational environmental and climate change regulations
- Renewable energy projects and the impact of government subsidies

#### **Case Study Preparation/Discussion:**

*Replacing the Goethals Bridge: A Blue State Model for P3 Projects?* (submit written case brief at start of class)

#### **Required Reading:**

Finnerty, Chapter 6

#### **Optional Reading:**

*Strategic Infrastructure: Mitigation of Political & Regulatory Risk in Infrastructure Projects*, World Economic Forum, February 2015

*How We Rate Sovereigns*, Standard & Poor's, February 13, 2015

\*\*\*\*\*

### **Session 6: ESG Discussion and Final Examination (May 7, 2019)**

- Sustainability, corporate responsibility, social impact and human rights
- Key ESG factors and project risks

#### **Case Study Preparation/Discussion:**

*The Dakota Access Pipeline Project* (read and be prepared to discuss in class, no written submission required)

#### **Optional Reading:**

*The SDG Investment Case*, UNPRI, October 2017

*Guidance and Case Studies for ESG Integration: Equities and Fixed Income*, UNPRI, September 2018

**Final Examination:**

90 minutes, in-class closed-book (50 multiple choice questions)

---

**Instructor**

**Paul Tice** is an Adjunct Professor of Finance at the Leonard N. Stern School of Business at New York University, where he mainly teaches on the energy, infrastructure and project finance markets. Mr. Tice has been a frequent guest lecturer, panel speaker and research contributor at NYU Stern since 2013, and served as an Executive-in-Residence at the school from 2015-2017. He also serves as a Faculty Adviser for the Stern Energy & Infrastructure Club, and periodically writes Op-Ed pieces on energy- and finance-related topics in The Wall Street Journal, The Hill and other news media.

Mr. Tice has worked on Wall Street for the past three decades and is a 30-year veteran of the fixed income and credit markets, including investment grade, high yield, emerging markets and private/illiquid/esoteric credit. For the last 25 years, he has specialized in the energy and infrastructure sector, both as a buy-side portfolio/hedge fund manager and a sell-side research analyst.

Mr. Tice currently works in the Fixed Income division of Schroder Investment Management, where he heads up research coverage for the energy and natural resource sectors. Prior to joining Schrodgers in August 2017, he was a Senior Managing Director and Head of the Energy Capital Group in the Asset Management division of U.S. Capital Advisors LLC, an energy-focused financial services boutique. Prior to joining USCA in 2015, he worked for six years at BlackRock, where he was the Head of private energy investments for the firm's Credit platform and Americas Fixed Income business, while also serving as the Lead Portfolio Manager for the Energy Strategy book within BlackRock's R3 Fund.

Prior to joining BlackRock in 2009, Mr. Tice was the Chief Operating Officer, Co-Chief Investment Officer and a Senior Partner of R3 Capital Management, a multi-strategy, credit-focused hedge fund manager that was spun out of Lehman Brothers in May 2008 and subsequently acquired by BlackRock in April 2009.

Prior to R3 Capital, Mr. Tice worked for a total of 14 years at Lehman Brothers (2002-2008, 1989-1997) in a variety of roles, most recently as a Managing Director in the firm's Global Principal Strategies (GPS) division, an internal, credit-focused proprietary fund that was formed in June 2006 and spun out in May 2008. While at GPS, Mr. Tice supervised the fund's investments in the energy and power sector, while also managing the overall GPS research effort and approving all private equity and longer-term investments by the fund.

Prior to joining the GPS group in 2006, Mr. Tice spent 17 years in sell-side credit research, both at Lehman Brothers and Deutsche Bank/Bankers Trust (1997-2002), where he mainly covered the energy sector, both as a senior analyst and a producing manager.

Mr. Tice has covered the energy sector since 1995 and was one of the top-ranked Investment Grade Energy analysts over 1995-2006. In 2006 and 1998, he was the #1 ranked Investment Grade Energy analyst on Institutional Investor's All-America Fixed Income Research Team. Prior to originally joining Lehman Brothers in 1989, Mr. Tice was a senior financial analyst at JPMorgan Chase.

Mr. Tice has previously served on the Board of Directors for Lightfoot Capital Partners GP LLC, International Resource Partners GP LLC, Arc Terminals GP LLC, Crown Oil Partners IV, LP and Richland-Stryker Investment LLC, all of which were investment portfolio companies of the R3 Fund.

Mr. Tice earned a BA degree in English, *magna cum laude*, from Columbia University in 1983, and an MBA degree in Finance from the Leonard N. Stern School of Business at New York University in 1988. He is a member of *Phi Beta Kappa*.