Colonial Penn Center
3641 Locust Walk
Philadelphia, PA 19104

Grace Park
408 786 7646
glpark@wharton.upenn.edu

National Bureau of Economic Research
1050 Massachusetts Avenue
Cambridge, Massachusetts 02138-5398

Dear Professors Bryan, Ganguli, and Myers;

I am a third-year PhD candidate at the Wharton School, University of Pennsylvania. I am writing to express my strong interest in attending the NBER Innovation Research Boot Camp.

All of my research focuses on financial incentives for pharmaceutical innovation. My dissertation demonstrates that pharmaceutical firms value innovation as a financial asset. Other working papers outlined in my CV examine site selection strategy and the trade-off between statistical power and speed in clinical trial enrollment. My work has been accepted and presented at multiple conferences, including at ASHEcon 2024, where I presented my first-year paper in a seminar chaired by Rena Conti, alongside papers by Luca Maini and and Jen Kao.

I have pursued every opportunity to conduct more insightful research on innovation. I am part of a biweekly working group on healthcare innovation, comprised of professors at multiple U.S. research institutions. Having webscraped my own data and built systematic text analysis programs to compensate for standard innovation datasets, I am familiar with the data resources and endogeneity concerns relevant to empirical research on innovation. Prior to the PhD, I was a senior economic consultant, leading analyses on intellectual property and antitrust. There, I saw first-hand how firms responded to innovation incentives. I added to this intuition by running focus groups of Wharton MBA students with innovation backgrounds to better understand the motivations powering my theoretical models. My performance in PhD coursework across four departments speaks for itself.

My goal is to conduct excellent academic research on financial incentives for healthcare innovation. If accepted, I expect that I will be referencing my notes and collaborating with the people I meet at this camp for the rest of my career. This camp is the perfect opportunity to add structure to my understanding of the field and expand my research community. The summer after the 3rd year of my PhD is the perfect time, because while I have research experience in innovation economics and have decided that my dissertation is in this field, I have not yet finalized how to frame my work in the context of the broader literature on innovation.

I have attached my curriculum vitae, research statement, and transcript, which contains the list of my PhD coursework. **My recommender is Professor Guy David** at the University of Pennsylvania (gdavid2@wharton.upenn.edu), who can speak to my academic qualifications and research potential.

Thank you for your consideration.

Sincerely,

Grace Park

GRACE PARK

+1-408-786-7646
glpark@wharton.upenn.edu
LinkedIn Profile

Education

University of Pennsylvania, the Wharton School, Philadelphia, PA
Ph.D. Healthcare Economics, *expected* May 2027.

University of Chicago, Chicago, IL
B.A. in Economics, May 2020.

Research Interests

Healthcare Finance, Innovation Incentives, Applied Microeconomics, Network Instruments

Working Papers

•**Innovations as Portfolio Assets: Evidence from Biopharmaceutical Alliances**
Presented at department PhD Seminar (April 2024, December 2024, February 2025)
Funding approved by the Mack Center for Innovation Management (May 2023)
Presented at Healthcare Innovation Working Group (April 2024)

•**Speed vs. Power: Enrollment Selection in Clinical Trials**
Accepted and presented at ASHEcon 2024 (June 2024)
Discussant: Wesley Greenblatt (Harvard); Chair: Rena Conti (Boston University)
Accepted and presented at Wharton-INSEAD Doctoral Consortium (October 2023)
Presented at department PhD Seminar (September 2023)

•**Sites and Subjects: Selection in Clinical Trials**
with Olivia Zhao (Harvard)
Submitted: Health Affairs (February 2025)

Research In Progress

"Medical Debt Relief on Healthcare Consumption" started October 2023.

Industry Publications

"The Best Way to Value Biotech for Deal Making and Investments" October 2020
IAM Law Business Research

Teaching Experience

Guest Speaker:

- Decision-making in Biotechnology and Pharmaceutical Industries, MBA, March 20, 2024.
- Mitigating Risk in Innovation: Pharmaceutical Industry, Executive MBA, December 3, 2024.
- Decision-making in Biotechnology and Pharmaceutical Industries, MBA, March 24, 2025.
- Risk and Learning in Clinical Trials, Undergraduate, April 2025.

Teaching Fellow:

- **MBA**: Leading Healthcare Organizations (HCMG8600) Spring 2023, Spring 2024.

- **Executive MBA:** Leading Healthcare Organizations (HCMG8600) Spring 2024.
- **Undergraduate:** Management and Economics of Pharmaceutical and Biotech Industries (HCMG2150/8990) Spring 2025.
- **MBA**: Management and Economics of Pharmaceutical and Biotech Industries (HCMG8630) Spring 2025.

Research Assistance Experience

Analytical skills: Extensive experience in programming and statistical applications including Python, Stata, R, SAS, Matlab.

Pharmaceutical Evergreening *Summer 2023 - ongoing*
Abby Alpert
Effect of the BPCIA policy on incremental pharmaceutical innovation.
Datasets: FDA product and submissions data, webscraped FDA labels

Cancer Provision in the Inflation Reduction Act *Summer 2024*
Danea Horn, Abby Alpert, Mark Duggan, Ray Jacobsen
Effect of immunotherapy on healthcare spending.
Datasets: CMS Data, Medicare Part D, Medicare Marketing

1. Created a set of potential empirical approaches to address endogeneity of patient illness on both immunotherapy and spending.
2. Constructed HHR, ZIP, and state-level instruments and mapped marketing by region-unit to visualize and summarize variation).

Industry Experience

•Epsilon Economics *2020 - 2022*
Senior Analyst Chicago, IL

– Modeled payment structures for cutting-edge gene therapies, then compared models on metrics such as affordability, industry incentives, government healthcare coverage, and effect on pharmaceutical innovation.
– Performed analysis in lost profits, commercial success, and reasonable royalty cases across a variety of sectors including the healthcare, life sciences, technology, and consumer products industries.
– Wrote SAS and R programs standardizing data analysis for firm's expert reports.

Technical Skills and Interests

Languages: Python, Stata, SAS, R, Matlab, Excel, LaTeX
Completed Coursework:

– Econometrics III: Advanced (Petra Todd)
– Empirical Public Policy (Uli Doraszelski)
– Corporate Finance and Financial Institutions (Itay Goldstein)
– Financial Economics (Winston Dou)
– Empirical Methods in Corporate Finance (Luke Taylor)
– Introduction to Empirical Methods in Finance (Nik Roussanov)
– Industrial Organization of Healthcare (Claudio Lucarelli)
– Proseminar in Health Economics: Models and Methods (Guy David)
– Proseminar in Health Economics: Health Econometrics (Atul Gupta)
– Economics of Health Care and Policy (Alex Olssen)
– Doctoral Seminar in Organizational Behavior and Theory (Ingrid Nembhard)
– Applied Econometrics (Paul Shaman)
– Game Theory and Applications (Kevin He)
– Microeconomic Theory (Steven Matthews)
– Economic Foundations of Management (Daniel Levinthal and Claudine Gartenberg)

In-Progress Coursework: Empirical Industrial Organization (Aviv Nevo)

I have been focused on the economics of pharmaceutical innovation since before the PhD.

Four years ago, I led a team of analysts working on the acquisition of a novel genetic therapy. I blew through the budget and frustrated the economic expert because I was dissatisfied that our valuation assumed risk-neutral agents. In confidential documents and depositions, the innovators – who had backgrounds in finance – described risk-mitigation strategies, because pharmaceutical investment is influenced by risk factors prior to commercialization, such as share price fluctuations from clinical trial results. And yet, every economic model or policy incentive assumed that innovators optimize only over expected returns after market entry.

The discrepancy bothered me so much that I left my job for academia to study it.

Since then, I have researched the financial economics of innovation in healthcare.

My current project uses portfolio choice theory to explain how pharmaceutical firms make investments within an R&D area. Specifically, I observe that firms often form alliances simultaneously, with multiple startups targeting the same area, defined as a therapeutic area, disease, and phase of development. These portfolios of redundant candidates are slower and costlier than in-house production ("make") or outsourcing R&D to a single biotech ("buy"). Portfolios are inefficient relative to the investment decisions that firms would make if they only cared about expected returns post-market entry. And yet, I observe that over 60% of pharmaceutical firms form them in at least one R&D area.

To explain this behavior, I built a novel theoretical model, which shows that firms value early-stage innovations as financial assets, not just as products, and collected novel data to test my model's predictions. My model represents a departure from economic models of innovation, because it expands the choice set for producers, and acknowledges that they care about return structure *prior to market entry*. I spent the last two years generating buy-in for my project from theoretical and empirical researchers in economics and finance, which involved extensive robustness checks that portfolios exist, finding mechanisms for risk aversion, derivations to predict the parameter ranges in which a firm would diversify rather than "make vs. buy," and reduced form empirical tests of my model's predictions.

Another one of my projects demonstrates that clinical trial sponsors choose whether to meet their target enrollment for trials by trading off between speed and statistical power. Higher enrollment is slower and costlier, but increases the probability of approval. Critically, I find that this trade-off depends on whether sponsors are publicly-traded.

I would like to be considered for the **NBER Innovation Research Bootcamp for two reasons:**

First, every time I discuss my project, I get pointed to a different set of papers: "have you read [x] in [y field that is tangential to innovation]?" Hopscotching across the economics and finance literatures, I developed an ad-hoc understanding of some of the trends. I supplemented that understanding by taking every PhD course across Penn's Economics, Finance, Healthcare Management and Economics, and Management departments that mentioned "innovation" in its syllabus. Still, there are gaps in my comprehension, which makes it difficult to know how my project contributes to this body of work. I want to attend this camp to get the complete scope of the literature and the full range of its assumptions – the way that those working in it see it – rather than a collection of empirical findings and disjointed theories.

Second, this camp would connect me with fellow innovation economics students. My current research community – a biweekly, online Healthcare Innovation Working Group – is all professors, so their work tends to be more developed and defined by their respective fields of applied microeconomics, strategy, and operations. Being at the NBER camp would give me the opportunity to discuss more preliminary ideas with people who also light up when they talk about innovation.

The University of Pennsylvania

Level:Graduate/Research

Primary Program
Program: Doctor of Philosophy
Division : Wharton School Doctoral
Major : Health Care Management & Economics

INSTITUTION CREDIT:

SUBJ	NO.	COURSE TITLE	CU	GRD	R
Fall 2022					
Wharton School Doctoral					
ECON	6100	Microeconomic Theory	1.00	A-	
HCMG	9000	Proseminar in Health Economics: Models and Methods	1.00	A	
HCMG	9040	Doctoral Seminar in Organizational Behavior and Theory in Health Care	1.00	A+	
STAT	5200	Applied Econometrics I	1.00	A	
Ehrs: 4.00 GPA-Hrs: 4.00 QPts: 15.70 GPA: 3.93					
Spring 2023					
Wharton School Doctoral					
ECON	6110	Game Theory and Applications.	1.00	A-	
FNCE	9260	Empirical Methods in Corporate Finance	1.00	A	
HCMG	9010	Proseminar in Health Economics: Health Econometrics	1.00	A-	
HCMG	9030	Economics of Health Care and Policy	1.00	A	
Ehrs: 4.00 GPA-Hrs: 4.00 QPts: 15.40 GPA: 3.85					
Fall 2023					
Wharton School Doctoral					
BEPP	9110	Empirical Public Policy	1.00	A	
ECON	8310	Econometrics III: Adv	1.00	A-	

********** CONTINUED ON NEXT COLUMN **********

SUBJ	NO.	COURSE TITLE	CU	GRD	R
Institution Information continued:					
FNCE	9110	Financial Economics	1.00	A	
MGMT	9000	Sem Strat Mgmt	0.50	A	
Ehrs: 3.50 GPA-Hrs: 3.50 QPts: 13.70 GPA: 3.91					
Spring 2024					
Wharton School Doctoral					
FNCE	9120	Corporate Finance and Financial Institutions	1.00	A-	
FNCE	9210	Introduction to Empirical Methods in Finance	1.00	A	
HCMG	9020	Industrial Org of Hc	1.00	I	
Ehrs: 2.00 GPA-Hrs: 2.00 QPts: 7.70 GPA: 3.85					
Fall 2024					
Wharton School Doctoral					
HCMG	9051A	Health Care Management PhD Research Seminar	0.25	PR	
HCMG	9950	Dissertation	0.00	S	
Ehrs: 0.25					
Spring 2025					
ECON	8400	Empirical Industrial Organization	0.50	IN PROGRESS	
HCMG	9950	Dissertation	0.00	IN PROGRESS	
In Progress Credits 0.50					

********** TRANSCRIPT TOTALS **********

	Earned Hrs	GPA Hrs	Points	GPA
TOTAL INSTITUTION	13.75	13.50	52.50	3.89
TOTAL TRANSFER	0.00			
OVERALL	13.75	13.50	52.50	3.89

********** END OF TRANSCRIPT **********

UNOFFICIAL

Health Care Management Department
The Wharton School
University of Pennsylvania
305 Colonial Penn Center
3641 Locust Walk
Philadelphia, PA 19104.6218

Guy David, Ph.D
Alan B. Miller Professor
Chair, Health Care Management

January 31, 2025

Dear Members of the Selection Committee,

I am pleased to write in strong support of Grace Park's application to the NBER Innovation Research Boot Camp. Grace is a third-year PhD candidate in Healthcare Management and Economics at Wharton, and I have had the privilege of advising her research. Her work is among the most original and ambitious I have seen from a graduate student at this stage.

Grace's dissertation examines financial incentives for pharmaceutical innovation, challenging traditional economic models by demonstrating that pharmaceutical firms value innovation not only as a productive input but also as an asset. Her work integrates elements of innovation economics, finance, and industrial organization in a way that pushes the frontier of our understanding of firm behavior in this space. More specifically, she is the first, to my knowledge to extend the Make vs. Buy framework in economics to include diversification considerations. She is eager to refine her understanding of innovation economics as a coherent field—something that this boot camp is uniquely suited to provide. Beyond her intellectual contributions, Grace is an exceptionally motivated and resourceful researcher. She has independently built novel datasets through web scraping and text analysis, engaged with industry professionals to refine her intuition, and demonstrated remarkable ability to synthesize insights across disciplines.

Grace will benefit immensely from the structure and community that the NBER Innovation Research Boot Camp offers. At the same time, she will be a valuable addition to the program—her enthusiasm for innovation economics is contagious, and she will actively engage with faculty and peers in substantive discussions. I strongly recommend her for this opportunity without reservation.

Best regards,

Guy David, PhD
Alan B. Miller Professor of Health Care Management
Chair, Health Care Management Department
The Wharton School, University of Pennsylvania,
and
Research Associate, National Bureau of Economic Research