## SPACE ECONOMICS

**IAFF 6158-010 (CRN 12131)**  
**Syllabus: Spring Semester, 2021**  
**Thursday 5:10 to 7:00 PM; On-Line Zoom**

**Prof. Henry R. Hertzfeld**  
Office: 1957 E Street, NW, Suite #403  
Tel: (202) 994-6628  
E-mail: hrh@gwu.edu  
Office Hours: By appointment through email (please provide suggested times available)

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
</table>
| January 14 | Introduction to Space Economics  
Review of topics for course and assignments.  
Overview: US and international space expenditures.  
Economics in US space policy |
| January 21 | The problems of definition and measurement  
Macroeconomic Space Studies (fiscal policies) Is there a space economy? A LEO economy?  
Economic Theory and Early Studies: What are we measuring (income, jobs, productivity, ROI's; multipliers, benefits?) |
| January 28 | Microeconomic Theory Review:  
Assumptions: Applying them to space issues and analyses  
Overlap of political and economic factors for space business ventures  
Overcoming barriers to entry into space business (opportunity costs)  
Theory of Demand/Consumer behavior |
| February 4 | Microeconomic Theory Review:  
Production  
R&D as a production cost  
Cost Analysis and Supply Curves  
Putting Demand and Supply together--equilibrium |
| February 11| Microeconomic Theory Review:  
Estimating Demand and Business Forecasting |
| February 18| Microeconomic Theory Review:  
Monopoly, Oligopoly, and Monopolistic Competition  
Other economic analytic tools (game theory; decision trees, etc.)  
Example: economics of proposals for resources in outer space |
| February 25| Economic History and Technology (Guest Speaker (invited)—Alex MacDonald, NASA) |
| March 4    | Space Technology Transfer, Spin-offs, Spin-in, Innovation  
Considerations on Government Budgeting, Dan Schory (invited), OMB? |
| March 11   | Cost Economics for Space Programs and NASA strategic planning  
(Guest Speakers (invited)—Thomas Coonce, NASA, Jonathan Krezsl) |
| March 18   | Spring Break |
| March 25   | Finance, Economics, Business, and Business Planning  
Case Study: Economics of Launch Vehicles;  
Case study: Economics of Space Resource Use |
| April 1    | Finance and contracting issues |
| April 8    | Student Presentations: |
| April 15   | Student Presentations: |
| April 22   | Student Presentations: |

**Term Paper and Final Presentation Viewgraphs due**