

**Full Course Title:** Citigroup, Global Commodities Research: Political and Economic Impact of Rare Earths

**Course Number:** SIPAU900.032

**Faculty Advisor:** Jenik Radon

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**Meeting Date/Times:** R 02:10P-04:00P

**Location:** INTERNATIONAL 501

**Office Hours:** by appointment

**Credits:** 3

**Course Overview:**

**Brief description of client:**

Despite an increasing profile and media attention, rare earths remain a relatively obscure and ill-understood market. In this Capstone Workshop, SIPA students led by a faculty advisor would research and write a comprehensive report on the emerging rare earth market under the direction of the Citi's Global Commodities Research Team for ultimate publication and distribution to Citi's research readership, clientele, and the broader public.

**Summary of project:**

1. What are rare earths? Background on the physical/chemical properties of rare earths and their industrial uses.
2. Demand: Discuss the sources of rare earth demand, a breakdown of the major consumers both in the past and projected into the future, analyze the sensitivity of demand to prices and other incentives, and the prospect for technological substitutes.
3. Supply: Discuss of the sources of rare earth supply, their geological concentrations, present a model of the economic costs for finding, exploration, extraction, and refining, and the sensitivity of supply to prices and other incentives.
4. Prices and Market: Discuss the structure of the rare earths market, the logistics of transportation and delivery, the equilibrium between market demand and supply (is it a spot market, long-term contracts?)
5. Externalities: Assess environmental and other important externalities and discuss important policy responses.
6. Geopolitics: Discuss the geopolitical implications of Chinese dominance of the rare earths market and possible responses by Japan and other consumers.

**Tasks:**

Reading the latest reports on the state of knowledge of rare earths  
Technical assessment of the science/technology/geology of rare earths  
Economic and financial analysis of the rare earths market (both demand, supply, and market formation)  
Analysis of the environmental costs of rare earths  
Analysis of the geopolitics of rare earths

**Deliverables to client:**

Detailed Work Plan – February  
Draft Report Outline – Early March  
Preliminary Analyses and Draft Report - Early April  
Final Report - Middle of April  
Presentation – End of April

**Special skills/knowledge needed by team members:**

Economic Modeling  
Financial and Quantitative Analysis  
Environmental Aspects of Mining  
Geopolitics  
Excel Skills  
Powerpoint Presentation Skills

**Initial meeting(s) with your student team in late November or early December, if applicable:  
TBD**

**Dates for meetings with client, if already scheduled): TBD**

**Field component: No travel outside of New York is envisioned.**

**Student selection:** [All eligible students may apply for up to five workshops through a special online application process in October. Assignment of students will be coordinated by the Office of Academic Affairs, and relevant faculty will be consulted about team membership for their workshop(s).]

**Grading (students receive an individual grade):**

Grades for the workshop will be based on the following criteria:

Quality of individual written work (10%)  
Quality of participation in class, Peer review (20%)  
Feedback from the client (20%)  
Overall professionalism, including timeliness, ability to work with team, etc. (20%)  
Quality of team's final report and briefing (30%)

**Readings:** TBD

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