General Concepts:

I. Capital Requirements for Satellite Projects
   - space segment
   - ground segment
   - insurance

II. Satellite Financing Markets
   - venture capital
   - private equity/debt
   - commercial banks
   - capital markets
   - export credit agencies
   - manufacturers and service providers

III. Issues of Concern
   - credit risk
   - technology risk
   - market risk
   - asset risk
   - political risk

IV. Satellite Financing Structures
   - recourse credit facilities
   - project financing
   - export credit agencies
   - capital markets
• leases
• manufacturer/vendor support

V. Satellite Projects as Collateral
A. types of collateral
   ▪ the satellite
   ▪ ground facility and equipment used for tracking, telemetry and control, including underlying real property
   ▪ ground segment infrastructure (e.g., gateways, network operation center and interconnection facilities)
   ▪ intellectual property rights and licenses needed to operate the system
   ▪ governmental authorizations and licenses needed to operate the space and ground segments
   ▪ supply contracts (satellite and ground segment manufacturing agreements, launch services agreement and service contracts)
   ▪ revenue-generating agreements (transponder lease agreements and capacity agreements)
   ▪ launch and in-orbit insurance/proceeds

B. perfection of security interests
   ▪ national laws
   ▪ Unidroit Space Assets Protocol

Questions for consideration and discussion:

Project finance structures:
(i) Some satellite projects are financed by lenders on the basis of the project itself, rather than on the basis of the existing operations. One of the key issues for lenders is that the project business plan, or the financial plan, shows that the project will be able to repay the debt with margin. From what you have seen on previous satellite projects, what are the most important determining elements as to whether or not these projects will succeed in getting financed by an
export credit agency or other commercial lender on a project basis, without also relying on the corporate credit and with the project generally non-recourse to the project sponsor?

(ii) When a lender asks you to work with them on a satellite project, what are the first set of key issues you tell them to consider and that you seek to understand? And what are the key (maybe other) things they tend to look at from a commercial perspective?

(iii) What are the most negotiated aspects of a satellite financing, among lenders and borrower/sponsor?

(iv) Why don’t the analogies for a traditional project financed project necessarily apply to a satellite project financing?

Commercial:

(i) We keep hearing about how the downward pressure from the price of capacity is resulting in a CapEx slow-down for operators. And yet, looking at some of the quarterlies, some of the operators are doing pretty well. What is the equity and debt environment like out there for established players?

(ii) What are some of the potential headlines for M&A and spin-offs in the satellite sector? What is being projected re: horizontal M&A among satellite operators? Given the projections for growth in IOT, will some operators to start delving further down into the value chain via acquisitions and vertical M&A? With the potential for increased growth of hybrid networks, will non-satellite players to try to acquire satellite assets / operators?

Policy issues:

(i) Will there will be a renewed effort for the Free Enterprise Act or something like it?

(ii) What policy issues are preventing satellite industry actors from successfully getting funding from investors?

(iii) Looking ahead, what satellite related policy issues are up and coming?

Insurance:
(i) Does less CapEx and fewer satellite orders mean less activity for insurance brokers, or are there new insurance requirements for new space initiatives? What are they?

(ii) How has the satellite insurance industry been adapting to the underlying changes in satellite projects, such as moving from a high-priced single asset in the form of a geostationary satellite to satellite constellations comprising replaceable smaller and less expensive satellites? How are constellations addressing insurance? How do insurers go about evaluating a constellation? Do you see insurance placements for cubesats on the rise? What does that look like?

(iii) With the potential of new launchers becoming available, how will the satellite insurance market evaluate these and determine cost of coverage for a new rocket that might be launching, for example, a OneWeb or Telesat satellite? Do you have to wait until there have been some successful commercial launches before providing insurance on a new rocket? What was the process like for insuring a satellite launched on, for example, a Falcon-9 prior to the first Falcon-9 commercial launch?

(iv) What makes satellite industry insurance different from other kinds of insurance?