Graduate Certificate in Space Law

Space Liability and Insurance

Act of God

Concept in space law that refers to an event caused exclusively by natural elements, without human intervention, making it impossible to prevent or predict. Examples include solar flares, asteroid impacts, or space weather.

Ad Lamina Limit

The boundary that separates the Earth's atmosphere from outer space, usually set at 100 km above sea level. Also known as the Kármán line.

Advanced Risk Assessment

A systematic process to identify, evaluate, and prioritize potential risks in space activities. It involves analyzing hazards, estimating probabilities, and determining the potential impact of identified risks.

Aerospace

A term that encompasses both air and space, including related industries, technologies, and operations.

Aggressive Space Policy

A space policy focused on dominance, competition, and military objectives, potentially leading to conflict and instability in space.

Apogee

The point in an object's orbit around Earth that is furthest from the planet's center.

Astronaut

A person trained and qualified to work in space, engaged in tasks related to space exploration, scientific research, or satellite operations.

Astronomical Liability

Liability for damages caused by space objects, as regulated by the Liability Convention. It includes both absolute and fault-based liability.

Attitude Control

The process of maintaining and adjusting the orientation of a spacecraft in space.

Aurora

A natural light display in the Earth's sky, primarily seen in high-latitude regions (Aurora Borealis in the North, Aurora Australis in the South), caused by charged particles from the sun interacting with the Earth's magnetic field.

Ballistic Missile Defense (BMD)

A defense system designed to intercept and destroy incoming ballistic missiles, often involving space-based assets.

Black Box

An indestructible recording device used to capture data from spacecraft, useful for investigating accidents and understanding the events leading to them.

Challenger Accident

A space disaster that occurred on January 28, 1986, when the Space Shuttle Challenger exploded 73 seconds after launch, killing all seven crew members. The accident was caused by the failure of an O-ring seal in the right solid rocket booster.

COPUOS

The Committee on the Peaceful Uses of Outer Space, a United Nations body established in 1959 to promote international cooperation in the peaceful exploration and use of outer space.

Columbia Accident

A space disaster that occurred on February 1, 2003, when the Space Shuttle Columbia disintegrated during re-entry, killing all seven crew members. The accident was caused by damage to the left wing during launch, which allowed hot gases to penetrate and destroy the structure.

Collision Avoidance

The process of preventing collisions between space objects, usually through maneuvers, monitoring, and coordination.

Deep Space

The region of space beyond Earth's gravitational influence, starting at approximately 380,000 km from Earth.

Debris Mitigation

Measures aimed at reducing the creation and accumulation of space debris, as well as minimizing the risks associated with it.

Demisable Body

An object, such as a satellite, designed to burn up or disintegrate upon re-entry to Earth's atmosphere, minimizing the risk of damage or injury.

Dual-Use Technology

Technology with both civilian and military applications, such as satellite communications or remote sensing.

Earth Observation

The use of satellites and other space-based assets to monitor and analyze Earth's environment, weather, geology, and human activities.

Earth Stations

Ground-based facilities used for communication with satellites, including antennas, receivers, and transmitters.

Electromagnetic Interference (EMI)

Interference caused by electromagnetic radiation affecting the proper functioning of electronic devices, including spacecraft.

End-of-Life Disposal

The process of safely and responsibly disposing of a space object at the end of its operational life, often through de-orbiting or transfer to a graveyard orbit.

Exclusive Use

The right to use and operate a satellite or other space asset without sharing it with other users or organizations.

Extraterrestrial

Pertaining to objects, phenomena, or life existing outside of Earth.

Fault-Based Liability

Liability for damages caused by space objects, as regulated by the Liability Convention, that arises when damage is due to the fault of the launching state or its operator.

Frequency Spectrum

The range of electromagnetic frequencies used for various communication and remote sensing applications, managed and allocated by international agreements.

Funding Agreement

An agreement between a space agency and a contractor for the design, development, and production of space assets, usually involving the transfer of technology and intellectual property rights.

Geostationary Orbit (GEO)

An orbit 35,786 km above Earth's equator, where a satellite matches Earth's rotation speed, appearing stationary from the ground.

Global Navigation Satellite System (GNSS)

A satellite-based positioning system that provides users with precise location and time information, including GPS, GLONASS, Galileo, and BeiDou.

Graveyard Orbit

An orbit above the geostationary belt used for disposing of retired satellites, minimizing the risk of collisions and space debris accumulation.

Ground Segment

The Earth-based infrastructure used for controlling, communicating, and monitoring space assets, including ground stations, control centers, and user terminals.

Hohmann Transfer Orbit

An elliptical transfer orbit used for moving a spacecraft between two circular orbits, minimizing the amount of propellant required.

Hosted Payload

A secondary payload carried by a primary space mission, usually sharing the same launch vehicle and spacecraft.

Human Spaceflight

Space travel involving human crew members, for scientific research, exploration, or other purposes.

Insurance

A contractual agreement where an insurer compensates the insured for losses or damages incurred, often used in space activities to cover launch failures, satellite losses, or third-party liabilities.

Intelsat

The International Telecommunications Satellite Organization, an intergovernmental organization established in 1964 to provide global satellite communication services.

Interference

The unwanted introduction of signals or noise into a communication system, often caused by other users or natural phenomena.

International Space Station (ISS)

A multinational space station orbiting Earth, used for scientific research, technology development, and human spaceflight training.

ITU

The International Telecommunication Union, a specialized agency of the United Nations responsible for coordinating global telecommunications and information technology.

Launch Authorization

The formal permission granted by a national space agency or other competent authority to launch a space object.

Launch Failure

An event during the launch phase of a space mission that prevents the spacecraft from reaching its intended orbit or target.

Launch Range

A geographical area used for launching space vehicles, including launch pads, control centers, and safety zones.

Launch Services Agreement

A contract between a launch service provider and a customer for the provision of launch services, including launch vehicle, range, and other related services.

Launch Vehicle

A rocket or other spacecraft designed to propel a payload into space, often consisting of multiple stages.

Liability Convention

The United Nations Convention on International Liability for Damage Caused by Space Objects, adopted in 1972, establishing rules for compensation for damages caused by space objects.

Life Determining Event

An event, such as a space mission anomaly or accident, that could result in the loss of human life.

Long March

A series of Chinese launch vehicles, developed by the China Academy of Launch Vehicle Technology, used for various space missions.

Low Earth Orbit (LEO)

An orbit below 2,000 km above Earth's surface, often used for Earth observation, communication, and scientific research.

Manned Spacecraft

A spacecraft designed to carry and support human crew members, also known as