Space Law
Curriculum Development

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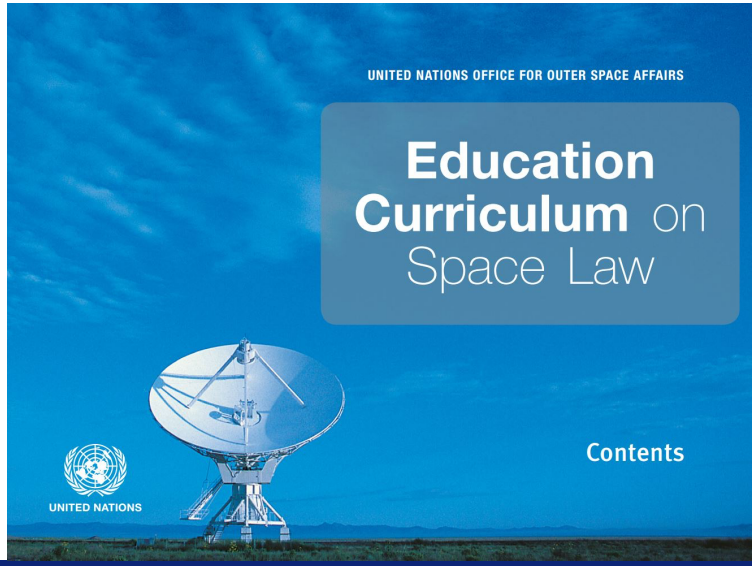
History

- In 2007, COPUOS asked OOSA to explore the development of a curriculum for a basic space law course
- Specifically for UN Regional Centres on space science & technology education
    - India, Morocco, Nigeria, Mexico/Brazil, Jordan, China
- Also for other education/training
- 1st /2nd drafts 2009 & 2011
- Final version in 2013



Methodology

- A group of ± 20 space law educators and experts worked via email and during meetings for several years
- They shared their teaching expertise to come to a consensus on structure and methodology of a basic space law curriculum
- The curriculum is complemented by an online compilation of reference materials, available on internet and as much as possible in all official UN languages; with the aim to update it regularly

Structure

- 4 modules, 5 classes each, 8 weeks (± 10 hrs/wk)
- Per module:
  - Introduction
  - Module Objective
  - Learning Outcomes
  - Module design
  - Sample questions
- Per class:
  - Learning outcomes
  - Materials, incl. legal documents, websites
- List of international instruments
- Separately: references & resources in 6 languages

Table of modules & classes

Table 1. Schematic overview of the space law curriculum

	Module 1 Basic concepts of international law and space law	**Module 2** Remote sensing/GIS, satellite meteorology and global climate + international law	**Module 3** Satellite communications + international law	**Module 4** Global navigation satellite systems (GNSS) + international law
Class 1	Introduction to international law	International law relating to remote sensing	Overview of international law on satellite communications	International institutional context for GNSS operations
Class 2	The Outer Space Treaty and the fundamental principles of space law	National legislation for remote sensing	Overview of international law on satellite communications	GNSS providers and GNSS augmentation
Class 3	Other space treaties and General Assembly resolutions	Regional and global agreements on remote sensing	Technical standards and national licensing	GNSS users
Class 4	National regulations, commercialization and privatization	Bilateral and multilateral agreements on remote sensing	International trade in satellite communication services and global mobile personal communication services	Legal framework for GNSS services
Class 5	Multilateral and bilateral agreements and intergovernmental organizations	Sources of remote sensing data	Satellite broadcasting	GNSS services, uses and current problems
Duration	2 weeks/12 hours	2 weeks/10 hours	2 weeks/11 hours	2 weeks/10 hours

Example: module 1

- Basic concepts of international law & space law
- Introduction

Module objective

This module provides students with a basic reference framework for understanding legal principles and rules as well as fundamental legal issues pertaining to space activities. Students are familiarized with the key concepts, terminology and constructs of both international law and international space law as a specialized subdomain of international law. The module therefore deals with two main aspects: firstly, "International law", which is considered in the first class, and secondly, "The legal regime governing the conduct of space activities", covered in the remaining four classes.

Learning outcomes

1. Awareness of how international law deals with space activities and space applications.
2. Awareness of the main structure and elements of international space law.
3. Awareness of the roles of national governments and international organizations in the regulation of space activities and space applications.

Module 1 design, topics class 2

Module design

The module consists of five classes of two hours each, with the exception of classes 1 and 3 (see table 2). The classes should consist of approximately 90 minutes of instruction, followed by at least 30 minutes for questions and discussion.

The class-specific programme can focus on those topics, issues and areas that are most relevant to the audience. At the end of each class description, students are given a list of reading materials to support their studies. For easy access to resources and references, most materials in the reading list are available online. Given the importance of the first module as a foundation for understanding specific applications of space law throughout the subsequent modules, it is recommended that additional materials which can be found on the OOSA website also be used.

The suggested schedule for this module includes two hours of tutorials, and therefore the time allotted for classes 1 and 3 is three hours. Module 1 does not include practical exercises.

Topics to be covered

The legal regime governing the conduct of space activities

- International treaties
  - ⇢ Outer Space Treaty
- Fundamental principles of space law
  - ⇢ Province of all mankind
  - ⇢ "Taking into account, in particular, the needs of developing countries"
  - ⇢ Freedom of exploration and use without discrimination of any kind
  - ⇢ Non-appropriation
  - ⇢ Application of the United Nations Charter and general international law
  - ⇢ Partial de-weaponization of outer space and demilitarization of celestial bodies
  - ⇢ Responsibility of States for governmental and non-governmental space activities
  - ⇢ Liability for damage caused by space objects
  - ⇢ Due regard to the corresponding interest of all States
  - ⇢ Duty to provide information on and to register space objects

Use in practice

- 2015 Beijing Centre course on space law & policy:
  - *'This training program was the first to adopt module teaching in line with Space Law Syllabus written by UNOOSA. […] Trainees expressed their satisfaction in terms of the quality of experts' knowledge, lectures […]*

- 2015 Report on the Meeting of the Centre Directors
  - *'The Centres expressed their desire to have expert educators in newly thematic areas such as Space Law so that they could start teaching the respective curriculum in this field'*

Strengths

- Good basic model for Regional Centres or institutions that do not yet teach space law
- Comprehensive content, focusing on basic legal background & practical applications of specific interest for developing countries
- Designed by teachers with broad experience and from various regions
- Sources and references per module/class very helpful

Weaknesses and remedies

- Probably less useful for established space law teaching institutions – but good checklist
- Teaching capacity needs attention
  - 'Teach the teachers' program?
- Content of Modules & Classes
  - Need for regular review, add new topics
- References & resources
  - Need updating, recent sources to be included; add more internet links
  - List of int. instruments: needs some work

- Data on implementation of the course is lacking
  - Issue a questionnaire?

Space law teaching in Leiden

- Prof. Goedhuis started teaching air law in 1938, professorial chair created in 1947, extended to space law in 1961
- Prof. Wassenbergh succeeded in 1977, created the Int. Institute of air and space law in 1985
- Adv. LLM programme started in 2000, under direction of Prof. Haanappel
  - Current direction: Prof. Mendes de Leon & Asst. Prof. Masson-Zwaan
- Also: undergraduate course and PhD students

Adv. LLM in air and space law

- Face to face (1 yr) / Blended learning (2 yrs)
- Start in September or February
- Specializing in legal / policy issues of aviation and space activities in the broadest sense
- Detailed info: www.mastersinleiden.nl

INTERNATIONAL INSTITUTE OF AIR AND SPACE LAW

Keys for success

- Unique blend of students from all continents
- Large alumni network – worldwide connections
- Interactive teaching methods
- Guest lecturers by expert practitioners
- Mandatory internship
- Mandatory moot court
- Encourage students to
  - Participate in research, paper competitions
  - Attend and present at seminars
  - Publish in specialized journals
- Field trips to organisations, industry

Course on space law & policy

- Treaties & principles
- National space legislation
- Legal status of space objects and astronauts
- Military uses of space
- Nuclear power sources
- International/regional cooperation in space
- Small satellites
- Dispute settlement
- Commercialization/Privatization
- Human spaceflight and ISS
- Space insurance
- Space mining
- Environmental issues
- And more

30-40 2-hour classes; wide variety of themes, e.g:

- History & law-making
- COPUOS
- UN treaties and principles
- Science & exploration
- Europe in space
- Space Traffic Management
- Human spaceflight incl. ISS
- Suborbital flights
- Private space industry
- Entrepreneurship, contracting
- Dispute settlement
- Space debris
- Environmental law
- Telecommunications law/ ITU
- Space insurance
- Unidroit Space Protocol
- LTSSA
- Militarization/weaponization
- Export control regimes
- National space legislation (various countries)
- Satellite navigation, Galileo
- Space mining
- Small satellites
- Space big data

Key to success: continuous adapting

- Space law is characterized by rapid developments (privatization, commercialization)
- Necessitates annual updating of topics & teaching materials
- New methods of teaching provide new insights
  - Treaty making workshop (ISU)
  - World café sessions
  - Moot courts

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Thank you!

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