

Last update: 07/03/2022

Course Title: Dictionary of Space Concepts Course	
Coordinator's name and contact email	Seth Berk , seth.berk@hhu.de ; Anna Krukiewicz-Gacek, kruk@agh.edu.pl
Structure (University, Institute, Department...)	Heinrich Heine University Düsseldorf, Language Centre – Students Academy AGH University of Science & Technology, Kraków – Dept. of Foreign Languages

General information	
Level (Bachelor B1, B2...), Master (M1, M2) or PhD Integration in an existing programme, if already identified.	Open to all students from all faculties of each partner university. At least B2-level English required for all participants (via online placement tests or recognized language proficiency certificates). The course will be offered online and is a part of WP2's Multilingualism Programme, which is being offered by the HHU Düsseldorf together with partner language centres in the UNIVERSEH Alliance. The HHU and the AGH Krakow will be co-teaching this course (60:40).
ECTS Credits	3
Estimated number of students from each involved institution	Approx. 5 students from each institution. We aim to enrol approximately 20 students total for Winter Semester 2022/23. We are exploring ways to implement this course as an online course together with members of WP4, with the aim being to increase the number of participants with each new iteration of the course.
Estimated Global Volume (hours)	30h (teaching), 75-90h total work by students, including asynchronous online tasks
Estimated period: (1 st semester...)	1 st and 2 nd semesters (Winter 2022/2023, Summer 2022/2023)
Teaching languages	For the lectures: English For the student documents: English For the interactions (guide work, projects...): between and with the students: English (Guest lecturers from each alliance partner will introduce concepts in their local languages; entries contributed to the DSC by students participating in the class will be translated into all partner languages.)

Interested/Open to other participation in course creation <input type="checkbox"/> Partner already identified <input checked="" type="checkbox"/>
Partners identified for creating the course: HHU Düsseldorf & AGH Krakow Partners identified for sharing the course: LTU Sweden, UFT, Uni Luxembourg
Other participants (fill in as appropriate)

Academic partners involved, from the consortium or from outside the consortium	The course will initially be co-taught by the HHU Düsseldorf and the AGH Kraków (60:40); possible guest lessons by other partner language centres and interdisciplinary guest lecturers from other
Other partners involved (companies, associations...)	faculties will be arranged in Spring 2022. Further cooperation will be added with each iteration of the course.
Guests speakers	External partners will be invited to contribute authentic materials to the class and the DSC itself (Airbus, ESA, DLR, et al.). Contacts should be made with these stakeholders in Spring 2022. Students will co-determine topics covered in class, and external partners will be contacted accordingly.
Other participants needed (give details of your needs)	To be determined (see above).

Academic fields & Space segments involved <i>(mark with a cross as appropriate)</i>					
Application segment / Academic field	Our Earth and space	Sustainable Space (access to space; around Earth)	Space Settlement and resources	Space Exploration & discovery	Comments
Science & Engineering		X	X	X	SSR, Space debris, satellite imaging
Economy, Business, Finance		X	X		Space X, Blue Origin, privatization of Space
Medicine & Health	X	X		X	Effects of weightlessness on humans, growing food in zero-gravity
Social & Human Sciences	X	X	X	X	Diversity in Space, Psychological effects of Space travel
Art & Cultural Studies	X		X	X	Space in films, art, and literature – cultural identity during the Cold War
Innovation & Patents, Entrepreneurship		X	X	X	SSR, private Space enterprises

5 Star System*

(a minimum of three stars must be selected, please shortly justify each star proposed)

<p>★ Active learning techniques</p>	<p>This online course will make use of a flipped classroom, project-based learning, and peer-to-peer learning networks. Students will present case studies on current research and space-related topics, develop presentations in teams, and co-create entries for inclusion in the Space Dictionary. They will be given opportunities to give peer-feedback, with team-based learning activities emphasizing students' own expertise. Students will be invited to democratically choose content of both the course (researching/presenting authentic materials connected to current events and new research in fields connected to the space sector) and actively contribute new entries for the DSC itself, thereby allowing students to take ownership of the Space Dictionary project. A final essay assignment will allow students to reflect on knowledge and skills gained in the course.</p>
<p>★ Digital content</p>	<p>We will record and upload short tutorial videos for each thematic module, provide students with online community spaces for sharing their work and giving peer-to-peer feedback on asynchronous and in-class tasks, via Google Workspace or other shared document editing tools. Online quizzes and asynchronous polling tools (via Moodle et al.) will also be employed. Students will generate content directly for the DSC, which is an open wiki-project being created by WP2 under Deliverable 2.8 via the EDU platform. We are working with WP4 to develop the course and create an effective online learning environment via the EDU LMS platform.</p>
<p>★ Interdisciplinarity</p>	<p>This language for specific purposes (LSP) course lends itself perfectly to interdisciplinarity, in which students from diverse academic backgrounds will be asked to interact with authentic texts, videos, brochures from other fields connected to global issues in the space sector, including current events in topics like sustainability, agriculture, diversity in space, human health, innovation, etc. Students from diverse academic backgrounds will work together on feeding terms into the DSC project. Students from all faculties at our partner universities are invited to participate. We will also contact experts at each of our partner institutions for recommendations on relevant literature and topics, potentially inviting them to give short presentations in class on their research interests. Prof. Tadeusz Uhl, Director of the Space Technology Centre AGH UST, has expressed interest as acting as an expert for the course. Additional interdisciplinary experts will be contacted in Spring 2022.</p>
<p>★ Multilingualism</p>	<p>While the primary language of the Dictionary of Space Concepts is English, we aim to translate all terms into all languages of the partner institutions of the UNIVERSEH Alliance, and ultimately of all the official EU languages. Beyond translating the DSC into partner languages, in subsequent iterations of the course, multilingualism will be introduced into the classroom and the asynchronous student tasks via subtitled videos (e.g., French documentary with English subtitles), quizzes, and icebreakers. In guest lessons and lectures by expert faculty members from alliance partners, instructors will be asked to introduce important space concepts in their local languages.</p>
<p>★ European: Cooperation with another UNIVERSEH partner</p>	<p>The course will initially be co-taught by the HHU Düsseldorf and the AGH Kraków (60:40). While the course will initially be co-taught by the HHU Düsseldorf and the AGH UST Kraków, we would like to pursue expanding the co-teaching element to include all language centres participating in the UNIVERSEH Alliance, via our cooperation in the Multilingualism Work Group (WP2), in later iterations of the course. We aim to include students from all five institutions into the class via its</p>



	online format, and we are also considering innovative pedagogy techniques such as co-teaching between all alliance partners, especially once the course has been implemented as a jointly offered online course.
--	--

**For further information please refer to the document “Guidelines for granting the stars in the 5 Star system for new courses”.*

In addition to the 5 Star system, UNIVERSEH new courses should also:

- be planned to integrate in existing programmes as soon as possible.*
- be given in the University creating the course and in another University of the Consortium in the experimental deployment phase (Academic year 2022-2023)*



Profile and prerequisites for the course – Please specify as precisely as possible the student population identified for the course

Mobility - Please specify any mobility to be planned for the students, estimated number of students, period of mobility, and estimated date, if possible.

Learning Outcomes

Written in terms of learning objectives targeting a particular skill

See for ex.:

- https://members.aect.org/pdf/proceedings/proceedings15/2015i/15_04.pdf
- <https://www.celt.iastate.edu/teaching/effective-teaching-practices/revise-blooms-taxonomy/>

In the DSC course, as part of an introductory theoretical framework, students will gain some specialized knowledge of basic linguistics, lexicography, morphology, principles of translation, which will provide them with the necessary toolkit for selecting and adding terms to the Dictionary of Space Concepts.

As an integral component of this LSP course, students will hone and further develop communicative skills in English for their later professional lives, with in-class activities designed to improve their speaking, writing, and listening skills in academic and professional contexts, with an emphasis on acquiring mastery of terminology connected to the space sector.

Students will gain insight into emerging technologies and current events in fields connected to the space sector. Topics may include (but are not limited to) issues like sustainability and space, economic opportunities in space exploration and transportation, medical issues connected to weightlessness, growing sustainable food, satellite and rocket technologies, cultural imaginations of humans in space, legal questions regarding the colonization of space, and even refresh their knowledge of important past events in the history of space exploration.

Students will develop new concepts and definitions for the Dictionary of Space Concepts, whereby students will gain important teamwork skills through collaborative work on the DSC project, with peer-to-peer feedback,



in-class presentations, and case studies. Students will be able to add their own visual/audio media to entries, create links to other online content. This class is unique, in that its project-based learning enables students to take ownership of the DSC project through their work in class, as the DSC will continue to exist as an everevolving, online dictionary beyond the parameters of the course itself.

Learning Outcomes: By the end of the course, students will be able to:

1. Improve their professional English for post-graduate studies and future employment opportunities
2. Understand, speak, and write about a variety of scientific topics and participate in intercultural exchanges
3. Contribute new entries to the Dictionary of Space Concepts (including adding visual media, links, and videos associated with individual concepts).
4. Understand the basics of lexicography
5. Gain a broader understanding of current events, new research, and technologies in fields connected to the space sector
6. Increase their ability to work as members of a team and successfully engage in project development

Learning Approaches and Global Tentative Agenda

Example:

- *composed of*
 - o *x lectures of x hours given by..., during N1 hours approximately provided by Univ1*
 - o *x lectures of x hours given by..., during N1 hours approximately provided by Univ2*
 - o *student projects during N2 hours approximately, jointly provided by Univ1 and 2*
- *short program associated to the course (launch meeting of students/teachers, ...)*
- *Autumn, Winter or Spring or Summer... schools*
- *Examination/validation*

Learning Approach:

Course will be taught in both winter and summer semesters; it will be co-taught by the HHU and AGH, with guest lessons by other alliance partners and interdisciplinary experts. The course will be conducted online, with 30 hours of synchronous instruction, accompanied by approximately 30 hours asynchronous tasks (individual & partner/group work).

The course will often employ a flipped classroom, putting students into the roles of experts presenting their ideas to each other. As an online course, digital media are endemic to the classroom environment, and the synchronous meetings will be supplemented with asynchronous tasks that will help students prepare for class and apply their newly acquired knowledge and skills. Students will work on case studies in synchronous sessions, complete online quizzes and interactive exercises asynchronously via Moodle, and create videos and work on creating illustrations for the DSC, which will result in a tangible product at the end of the term,

i.e., their new entries will be included in the DSC project! Entries will also undergo peer-to-peer review before being officially submitted, making students accountable to each other as members of a team.

Students will not only add to entries to the DSC; they will also perform independent research and present on case studies connected to subjects like space tourism, the ethics of space exploration, human habitats in space, or even problems like pollution in space (space debris). This will be supplemented by project work extending beyond the DSC, such as creating model space start-up companies connected to the aforementioned fields. In-class exercises will facilitate putting students into positions of expertise concerning their own disciplines.



At the end of the term, students will submit their new entries as a micro-dictionary, which will then be included in the DSC. Finally, students will be asked to write a short reflection paper regarding on their participation in the course and what they learned throughout the semester.

Student interest in the course should extend far beyond contributing new terms and entries to the DSC! This is a course uniquely co-constructed by teachers and learners. Students will also be able to give us input not only regarding the content of the course, in terms of topics for each learning module, they will also have the opportunity to influence their learning outcomes, in terms of helping co-determine the language skills that they would like to work on (presentation skills, reading skills, using English in academic contexts, etc.). Our vision is to employ innovative pedagogy techniques that allow students to co-construct the course, taking ownership of its content and also of the DSC project itself. Like the DSC project, this course is a work-in-progress, to be developed in cooperation with students studying in our UNIVERSEH alliance!

Global Tentative Agenda:

Contact with stakeholder companies and institutions will be made Spring/Summer 2022, to gather authentic materials and invite guest speakers for relevant topics.

Prototype of the Dictionary of Space Concepts has been tested/validated Jan./Feb. 2022 via the EDU platform developed by WP4.

Syllabus and possible course topics to be determined Spring/Summer 2022 by HHU, AGH, and Multilingualism Work Group WP2.

Interdisciplinary experts in fields connected to the space sector will be contacted and asked to ask as guest experts in the class Spring/Summer 2022.

Ideas for collaboration with another partner of the Consortium

Collaboration with another partner refers to:

- *Collaboration in creating and making the course (one of the 5 stars of the 5 Star System)*
- *Collaboration to share courses for the 2022-2023 Academic year (mandatory).*

Please specify in this section any ideas regarding collaboration: if you already contacted a partner to engage discussions, if the collaboration has already been discussed, formalized or engaged, or if you only have identified a potential area of cooperation with a partner, but not yet contacted them.

As we have learned that several of the UNIVERSEH courses approved by the Academic Council are also considering creating glossaries for their courses independently, we would like to invite them to contribute entries directly to the DSC based on their courses, creating ontological glossaries of terms related to their fields that can be included in our DSC database. This might connect to our desire to expand our interdisciplinary cooperation at each partner university, by inviting these expert faculty members who teach and research in fields connected to the space sector to act as guest speakers and provide authentic teaching materials to the class.





Executive Summary

Half-page maximum description of the course as it will appear publicly on the website and adapted for students.

The aim of this course is to contribute to the development of an **illustrated Dictionary of Space Concepts**. This is a **student-driven project** but the dictionary will be available to the general public. Students will identify important terminologies and concepts for fields relevant to the space sector as part of the **UNIVERSEH** programme (e.g. "space, earth, natural sciences, medicine, humanities"). We will gather terms using authentic texts, videos, etc., in order to develop definitions, gather & create illustrations, and finally translate terms into the five UNIVERSEH partner languages (German, English, French, Polish, Swedish).

As an integral part of the course, students will hone and further develop their speaking, reading, listening, and writing skills for future use in academic and professional contexts.

Any other relevant information

In this class, students will aid us in creating the DSC project, which is being independently developed as Deliverable 2.8 by WP2. The Dictionary of Space Concepts is a two-way project: students will help us determine important terminologies and concepts for fields relevant to the space sector as part of the UNIVERSEH programme (e.g., "space, earth, natural sciences, economics, medicine, humanities"), and the DSC also provides a basis for the course's project-centred didactic approach. As stated in WP2's Deliverable 2.8, the project should ultimately serve as a handbook for teachers and students regarding space terminologies and connect to the advanced language classes being developed as part of WP2's Multilingualism Plan, i.e., the Space Dictionary course. Thus, the aim of this course is to enable students to contribute to the development of an illustrated Dictionary of Space Concepts that we are developing in cooperation with the HHU's Computer Linguistics Department as an open-wiki project that will be accessible to experts and the general public and that will exist independently of the course as a flagship project of UNIVERSEH.

WP2's Dictionary of Space Concepts project is being developed together with the Computer Linguistics Department at the HHU (Prof. Laura Kallmeyer; Long Chen, Ph.D. Candidate) and being implemented via the EDU LMS-Moodle platform being developed by WP4 (Melissa Malagardis, UFT).

Because the course is connected to the creation of the illustrated DSC project, this course will also encourage interdisciplinary cooperation with local art academies from each Alliance partner. For instance, the Academy of Arts in Düsseldorf will be asked to contribute illustrations, videos, music, etc. to concepts added by students in the course, and simultaneously students will also be encouraged to create their own videos, music, or illustrations for the project.



Process

This document should be submitted to the WP3 UNIVERSEH team via both the following contacts:
Please mention the Coordinator's name in the title of the document.

- **Pascal Maussion**, VP International Affairs, Toulouse INP, pascal.maussion@toulouse-inp.fr
(and **Anne-Laure Franc**, Associate Professor, Toulouse INP, anne-laure.franc@laplace.univ-tlse.fr)
- **Adam Walters**, Professor of Physics, Université Toulouse 3, awalters@irap.omp.eu

And to your local contacts for WP3:

AGH	Krzysztof Grabowski, WP3 coordinator, Faculty of Mechanical Engineering and Robotics	kgrabow@agh.edu.pl
HHU	Nicole Dittrich, Coordinator UNIVERSEH	Nicole.Dittrich@hhu.de
LTU	Victoria Barabash, Division manager	victoria.barabash@ltu.se
Uni.lu	Mahulena Hofman, Full professor of the SES Chair in Satellite Communication and Media Law	mahulena.hofmann@uni.lu
	Holger Voos, Automation & Robotics Research Group & Programme Director of the Interdisciplinary Space Master ISM	Holger.Voos@uni.lu
	P.J. Blount, Research fellow, Cybersecurity Governance and Regulation at SES / University of Luxembourg	pjblount@gmail.com

Course proposal is now open and forms should be sent as soon as prepared even if all details are not fully defined. Courses should be ready to be given in the academic year 2022-23.

Further Information

UNIVERSEH Webinars:

- “What could be a course?” by Université de Toulouse - April, 30th 2021: video available soon on the official website.
- “Digital tools” by Université de Toulouse and Luleå University of Technology – May, 7th 2021: video available soon on the official website.
- “Active learning techniques” by Luleå University of Technology – May, 17th 2021

UNIVERSEH Documents:

- [Official website](#)
- Guidelines for grading the stars in the 5 Star system for new courses: [document available on request](#)