

SYLLABUS

Summer semester 2025/2026

Course	Translational Leadership, Research Integrity and Commercialization in Biomedical Sciences
Host Institution	Institute of Human Genetics Polish Academy of Sciences Strzeszyńska Street, 32
Language	English
The expected effects of teaching in terms of: knowledge, skills and social qualifications	<p>Knowledge Upon completion of the course, the PhD student:</p> <ul style="list-style-type: none">- understands the principles of responsible research and innovation in biomedical sciences;- knows the legal and ethical foundations of intellectual property protection and commercialization in regulated biomedical environments;- understands Technology Readiness Levels (TRL) and their application in life sciences;- understands key commercialization pathways, including licensing and academic spin-off formation;- understands differences between grant-based academic funding and venture capital investment logic;- is familiar with industry evaluation criteria used by pharmaceutical companies and deep-tech investors. <p>Skills Upon completion of the course, the PhD student:</p> <ul style="list-style-type: none">- is able to assess the translational and societal potential of their own research project;- is able to identify intellectual property opportunities and risks at early stages of research;- is able to prepare a structured translational project brief tailored to non-academic stakeholders;- is able to design a preliminary TRL advancement and validation roadmap (12-24 months);- is able to identify relevant industrial, clinical and investment partners;- is able to communicate research value propositions clearly to industry and innovation ecosystem actors. <p>Social Qualifications</p>

	<p>Upon completion of the course, the PhD student:</p> <ul style="list-style-type: none"> - demonstrates awareness of ethical responsibility in research commercialization; - understands the importance of interdisciplinary and cross-sector collaboration; - shows readiness to engage constructively with industry, investors and healthcare stakeholders; - demonstrates proactive and independent planning of career development within the research–innovation ecosystem; - respects academic integrity while operating in applied and commercial contexts.
Type of course	Facultative
Semester/year	Summer semester 2025/2026
First name/family name of the person responsible for the course	dr Jakub Jasiczak
First name/family name of the person responsible for the exam	dr Jakub Jasiczak
Format	<p>The course is delivered as a workshop-oriented lecture series (15 academic hours) combining:</p> <ul style="list-style-type: none"> • interactive lectures introducing theoretical foundations and international best practices in biomedical commercialization; • structured workshop sessions based on participants’ individual PhD projects; • case-based discussions; • guest lectures delivered by an invited deep-tech venture capital representative and a pharmaceutical industry expert; • guided development of individual translational and commercialization roadmaps. <p>The course is conducted in an interactive format with active participation of PhD students.</p>
Basic and additional requirements	Skills in English
Number of ECTSs	1
ECTSs summary	1 ECTS corresponds to 25-30 hours of personal studies focused on broadening knowledge based on suggested bibliography.
Method of teaching	<p>The course is delivered through interactive lectures combined with workshop-based sessions focused on participants’ individual research projects. Teaching methods include:</p> <ul style="list-style-type: none"> • short expert lectures introducing theoretical foundations and international best practices; • structured case-study analysis from biomedical commercialization environments; • guided workshop exercises (TRL assessment, IP mapping, translational planning); • preparation of project briefs and translational development roadmaps;

	<ul style="list-style-type: none"> • moderated discussion sessions; • guest lectures by a deep-tech venture capital representative and a pharmaceutical industry expert; • individual feedback on participants' commercialization and collaboration strategies. <p>The course emphasizes active participation and practical application of knowledge to real doctoral research projects.</p>
Method of evaluation	<p>Course credit is granted on the basis of continuous assessment and submission of an individual Translational and Commercialization Development Plan.</p> <p>Evaluation components include:</p> <ul style="list-style-type: none"> • active participation in workshop sessions and discussions; • submission of a written Individual Translational Development Plan (2–5 pages) based on the participant's own research project, including: <ul style="list-style-type: none"> ○ assessment of translational potential, ○ preliminary IP considerations, ○ TRL advancement strategy, ○ potential industrial and/or clinical partners, ○ funding pathway (grant, partnership, investment), ○ 12–24 month action roadmap; • final oral presentation (10 minutes) of the commercialization and collaboration pathway. <p>There is no traditional written examination.</p>
Prerequisite for passing	<p>Successful completion of the course requires:</p> <ul style="list-style-type: none"> • active participation in workshop sessions; • submission of an Individual Translational and Commercialization Development Plan based on the participant's own PhD project; • positive evaluation of the final oral presentation of the translational roadmap. <p>Failure to submit the individual plan or absence from the final presentation results in non-completion of the course.</p>
Topics	<ol style="list-style-type: none"> 1. Translational Thinking in Biomedical Research <ul style="list-style-type: none"> - From hypothesis to societal value - Publication-oriented vs implementation-oriented research design - Technology Readiness Levels (TRL) in life sciences - Identifying application hypotheses in early-stage biomedical research

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| | <ol style="list-style-type: none">2. Research Integrity, Ethics and Intellectual Property in Regulated Environments<ul style="list-style-type: none">- Responsible Research and Innovation (RRI)- Conflict of interest and academia-industry collaboration- Publication vs patent strategy- IP fundamentals for biomedical researchers- Data governance, regulatory constraints and clinical validation pathways
3. Designing Research with Implementation in Mind<ul style="list-style-type: none">- Translational gap in biomedical sciences- Early validation strategies- De-risking logic in drug development and diagnostics- Preparing a translational project brief for market consultation- Cooperation with Technology Transfer Offices
4. Industry Perspective: Big Pharma and Healthcare Systems
(Guest lecture - pharmaceutical industry representative)<ul style="list-style-type: none">- How pharmaceutical companies evaluate academic research- Biomarker validation and clinical relevance- Typical collaboration models with academia- What makes academic science investable or licensable
5. Financing Biomedical Innovation and Spin-Off Strategy
(Guest lecture – deep-tech venture capital representative)<ul style="list-style-type: none">- Venture capital logic vs grant logic- Risk, timelines and capital intensity in life sciences- Academic spin-off creation pathways- Ownership, equity and founder considerations- When to license and when to build a company
6. Strategic Networking and Positioning in the Innovation Ecosystem<ul style="list-style-type: none">- Building professional relationships beyond academia- Communicating with industry, KOLs and investors |
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	<ul style="list-style-type: none"> - Leveraging institutional partnerships and international networks - Personal brand building for researchers <p>7. Individual Translational Roadmap Development (Workshop Module)</p> <ul style="list-style-type: none"> - TRL assessment of individual PhD projects - Identification of potential partners (industry, clinical, investment) - Funding pathway mapping - 12-24 month commercialization and collaboration plan - Final project presentations
Additional material	<p>Participants will receive:</p> <ul style="list-style-type: none"> • lecture presentations in PDF format; • structured templates for: <ul style="list-style-type: none"> ○ translational project brief (1-page industry summary), ○ TRL self-assessment tool, ○ intellectual property decision checklist, ○ preliminary commercialization roadmap (12–24 months), ○ early-stage spin-off pathway outline; • selected case studies from European and US biomedical commercialization programs; • indicative industry evaluation criteria used by pharmaceutical companies and deep-tech investors; • recommended reports on life science venture capital and translational funding schemes.
Bibliography	<p>Selected practical materials, policy documents, industry reports and online resources will be provided after each thematic module.</p> <p>The course bibliography will include application-oriented sources such as:</p> <ul style="list-style-type: none"> • European Commission and OECD reports on research commercialization and Responsible Research & Innovation; • WIPO and European Patent Office materials on intellectual property in life sciences; • industry and venture capital reports on biomedical innovation and deep-tech investment; • selected case studies and guidelines relevant to translational research and academic spin-offs.