

 A.D. 1308 unipg UNIVERSITÀ DEGLI STUDI DI PERUGIA	Documento di pianificazione e di organizzazione delle attività formative e di ricerca (DPO)	MODOT AQ 3 Rev 01 del 21.03.2024
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Il Documento di pianificazione e di organizzazione delle attività formative e di ricerca viene richiesto al Corso di Dottorato in fase di presentazione della scheda di accreditamento del corso di dottorato. Ai contenuti del DPO viene data adeguata visibilità nel sito web del corso ai fini dell'attrattività e della trasparenza. Il DPO viene eventualmente aggiornato annualmente in caso di modifiche e si può redigere anche solo in lingua inglese.

PhD program in "Pharmaceutical Sciences"
Department of Pharmaceutical Sciences
Via Fabretti n. 48, 06123 Perugia

Data di compilazione May, 20th, 2025

Training activities calendar (D.PHD.2.1)

Attività didattiche – tipologia A, B e C (come da linee guida di Ateneo per la definizione delle attività didattiche e formative nell'ambito dei corsi di dottorato di ricerca, approvate dagli OO.AA. in data 30 e 31 gennaio 2024)

A. Frontal teaching provided by Doctoral Course in Pharmaceutical Sciences. Each student must acquire at least 18 credits of the courses indicated below in the three-year period.

The courses planned by the Academic Board cover topics in Scientific Disciplinary Sectors relevant to the two curricula, with a focus on medicinal chemistry, analytical chemistry, pharmaceutical technology, organic and bioorganic chemistry, nutraceuticals, molecular biology, and biochemistry. Relevance will also be given to interactive teaching consisting of group activities coordinated by a tutor. Following the teaching activities of type A planned for the XLI cycle are reported, of which some are specifically planned for one of the two curricula.

Denominazione insegnamento	n. cfu (ore)	SSD insegnamento	Verifica finale*	Docente	Tipologia Docente**	Distribuzione durante il ciclo di dottorato (anni in cui l'insegnamento è attivo)	Eventuale curriculum di riferimento***
Solid state characterization of pharmaceuticals: Thermoanalytical Techniques.	1 (6)	CHEM-03/A	written	Prof. A. Donnadio	Associate professor and member of the teaching board	I year	CC
Solid state characterization techniques.	1 (6)	CHEM-03/A	written	Prof. R. Vivani	Associate professor and member of the teaching board	I year	CC
Multi-omics strategies in drug discovery and nutraceutical development and validation	2 (12)	MEDS-08/C	written	Prof F Galli	Full professor and member of the teaching board	I year	CC
Emerging Approaches using Nucleic Acids as target or therapeutic	1 (6)	BIOS-08/A	written	Prof. Fatica A.	Associate professor L240/2010 art.23	I year	CC

molecules for the treatment of complex diseases I				Sapienza University of Rome	Lettera di incarico		
Emerging Approaches using Nucleic Acids as target or therapeutic molecules for the treatment of complex diseases II	1 (6)	BIOS-08/A	written	Prof. Morlando M. University of Sapienza Rome	Associate professor and member of the teaching board L240/2010 art.23 Lettera di incarico	I year	CC
Rational design of small molecule degraders: from PROTAC to IFDs	2 (12)	CHEM-07/A	written	High profile expert from companies Dr. A. Patsilnakos	L240/2010 art.23 Comma 1	I year	EPDD
Integrated technology platforms for medicinal chemistry and organic synthesis	2 (12)	CHEM-07/A	written	Prof A. Gioiello	Associate professor and member of the teaching board	I year	EPDD
Biophysical techniques: principles and applications I	2 (12)	CHEM-07/A	written	Expert with adequate requirements	L240/2010 art.23 Comma 2 <i>Selective procedure</i>	I year	CC
Biophysical techniques: principles and applications II. Surface plasmon resonance	2 (12)	CHEM-07/A	written	Prof. G. Manfroni	Associate professor and member of the teaching board	I year	CC
Drug Discovery: an introduction to the process leading to new small-molecule drugs.	1 (6)	CHEM-07/A		High profile expert Dr. T. Bandiera	L240/2010 art.23 Comma 1	I year	EPDD
Application of RT-PCR in basic and clinical research	2 (12)	BIOS-07/A	written	Prof. E. Albi	Associate professor and member of the teaching board	II year	PTN
Catalytic approaches in the synthesis of biologically relevant molecules	2 (12)	CHEM-05/A	written	Prof. L. Sancineto	Associate professor and member of the teaching board	II year	EPDD
Identification of RNA small molecules binders: techniques and therapeutic application	1 (6)	CHEM-07/A	written	Expert with adequate requirements	L240/2010 art.23 Comma 2 <i>Selective procedure</i>	II year	EPDD
Exploring Computer-Aided Drug Discovery: Theory and Practice	2 (12)	CHEM-07/A	written	Prof M. L. Barreca	Associate professor and member of the teaching board	II year	EPDD
Short course on ADME-PK and Physicochemical Properties of Drugs	2 (12)	CHEM-07/A	written	High profile expert from companies F. Lombardo	L240/2010 art.23 Comma 1	II year	CC
Introduction to Radiopharmaceuticals: principles and applications	2 (12)	CHEM-08/A		High profile foreign expert from companies Dr. A. Tolomeo	L240/2010 art.23 Comma 1	III year	CC
Drug Discovery for Liver Diseases: From Target Biology to Preclinical Research	1 (6)	CHEM-07/A		High profile expert from companies Dr. F. De Franco	L240/2010 art.23 Comma 1	III year	EPDD

Raman-AFM imaging in Pharmaceutical Sciences: a journey between chemistry and biology	2 (12)	CHEM-08/A	written	Prof S. Giovagnoli	Associate professor and member of the teaching board	III year	CC
Advanced Analytics tools and artificial intelligence supporting pharmaceutical oral solid dosages manufacturing	1 (6)	CHEM-07/A		High profile foreign expert from companies Dr. R. Simonetti	L240/2010 art.23 Comma 1	III year	PTN
Enantioselective analysis in liquid chromatography: principles and practical applications	1 (6)	CHEM-01/A	written	Prof. Sardella	Associate professor and member of the teaching board	III year	EPDD
Artificial Intelligence for Small Molecule Drug Discovery	2 (12)	CHEM-07/A		Expert with adequate requirements	L240/2010 art.23 Comma 2 <i>Selective procedure</i>	III year	CC

*scritta, orale, realizzazione di un elaborato (saggio, presentazione, etc...)

**componenti del collegio dei docenti, studiosi ed esperti italiani e stranieri di elevato profilo provenienti dal mondo accademico, dagli enti di ricerca, dalle aziende, dalle istituzioni culturali e sociali; indicare nome del docente ove possibile o la tipologia del contratto da stipulare.

***cc: corso comune; PTN: pharmaceutical technology and nutraceuticals; EPDD: early phase drug discovery.

B. Frontal teaching provided by other Doctoral Courses

PhD students can independently choose additional activities. Credits (CFU) for these activities will be recognized in accordance with the University's guidelines for defining teaching and training activities within PhD research programs.

Denominazione insegnamento	n. cfu (ore)	SSD insegnamento	Verifica finale*	Docente	Ripartizione/Area/Ufficio di Ateneo /Dottorato di riferimento	Distribuzione durante il ciclo di dottorato (anni in cui l'insegnamento è attivo)	Eventuale curriculum di riferimento

*scritta, orale, realizzazione di un elaborato (saggio, presentazione, etc...)

C. Frontal and transversal teaching of the University and/or another multi/inter/trans-disciplinary Doctoral Course - Each student must acquire at least 6 credits in the three-year period

PhD students can attend interdisciplinary doctoral courses considering those made available by the university ([offerta-formativa-trasversale xxxix update-9-apr-2025.pdf](#))

Denominazione insegnamento	n. cfu (ore)	SSD insegnamento	Corso erogato da ..	Distribuzione durante il ciclo di dottorato (anni in cui l'insegnamento è attivo)	Eventuale curriculum di riferimento	Verifica finale*	Docente
Elements of statistic	6 (12)	MAT/06	Associate professor UNIPG	I year	CC**	written	Prof Andrea Capotorti

*scritta, orale, realizzazione di un elaborato (saggio, presentazione, etc...)

**cc: corso comune

Attività didattiche – tipologia D (come da linee guida di Ateneo per la definizione delle attività didattiche e formative nell'ambito dei corsi di dottorato di ricerca, approvate dagli OO.AA. in data 30 e 31 gennaio 2024)

D. Congressional activities, doctoral schools and other scientific events - each student must acquire at least 3 credits over the three-year period.

PhD students are invited to participate in:

- **national/international congresses and/or workshops**, also as speakers;
- **national and international schools** on topics related to the PhD program. The suggested schools can be found in: <https://dsf.unipg.it/alta-formazione/dottorato-di-ricerca/training-activities-phd/suggested-international-and-national-schools-2>;
- **seminars** on topics specifically addressed the two curricula and organized by the academic board (at least 3-4 per year), other doctoral courses, universities/institutions or companies.

All the organized or suggested activities are reported in advance on the doctoral website, however, the PhD student can independently choose further activities, for which the relevant credits will be recognized in accordance with the University Guidelines for the definition of teaching and training activities within the Doctoral Courses.

Tipo di attività	Descrizione dell'attività (e delle modalità di accesso alle infrastrutture per i dottorati nazionali)	n. cfu (ore)	Eventuale curriculum di riferimento	Documentazione richiesta*

* *attestato di frequenza/attestato di partecipazione, etc...*

Integration of doctoral students in the scientific community (D.PHD.2.2)

The PhD program promotes the integration of the enrolled PhD students in the scientific community by:

- **Training moments for the exchange/presentation of research results**, as follows:
 - at the end of the first and second year, the PhD student presents a written report in English on the research activities carried out. The report is examined and evaluated by a commission comprising members from the Academic Board, which assesses the ability to develop and present the research project and may suggest revisions.
 - at the end of the first year, each PhD student gives a seminar on the preliminary results;
 - at the end of the second year, each PhD student presents a monographic thematic seminar on topics related to her/ his curricular path.Both seminars will be presented in English.
- **attending national/international congresses and/or workshops**, also as presenting author (at least one in the three-year period)
- **attending national and international schools** on topics related to the PhD program (at least one in the three-year period). The suggested schools can be found in: <https://dsf.unipg.it/alta-formazione/dottorato-di-ricerca/training-activities-phd/suggested-international-and-national-schools-2>.
- **PhD student mobility** to spend a period of study and research at qualified national or foreign universities, public or private research institutions, and companies

The integration of the enrolled PhD students in the scientific community is also favoured by the participation in doctoral networks, such as EUROPIN and Paul Erlich MedChem, and international scientific networks and research projects.

Autonomy of the PhD student (D.PHD.2.3)

During the three years the PhD students will acquire scientific and technical abilities in carrying out research activities, in participating in scientific discussions, as well as, in communicating the results of their research to all types of audiences and will progressively develop autonomy in setting up and managing original research projects or innovative programs. The training program should provide adequate skills to enter a broader job market than the academic one.

The PhD program promotes the autonomy of the enrolled PhD students in conceiving, planning, implementing and disseminating research and innovation programs by:

- adequate support and guidance from the academic tutor as well as from the curricula referents and the appointed commission; the identification of the academic tutor takes place on the basis of the research topics included in the call for the admission, according to rotation criteria. A maximum number of 2 doctoral students for each tutor will be possible;
- a company co-supervisor is provided for the PhD student working in the company;
- external Italian and foreign tutors from the academic world, research institutions and companies are part of the Board with support and mentoring roles;
- courses of management and dissemination of research, European and International research systems and intellectual properties organized by University of Perugia.

Financial and structural resources (D.PHD.2.4)

- Some PhD grants are financed by Unipg. Doctoral students have a pro-capite budget made available by the University, starting from the first year, equal to 10% of a PhD scholarship. The amount of the scholarship is increased by 50% for carrying out research activities abroad, for a total period not exceeding 12 months.
- The financial resources for carrying out the research activities are provided by the supervisors with their own research funds;
- PhD students have access to the department's facilities, scientific laboratories and instrumental resources of the Department of Pharmaceutical Sciences. Adequate access to databases is also provided.

Teaching and tutoring activities (D.PHD.2.5)

As an integral part of the training project, PhD students can carry out:

- tutoring activities for students of Bachelor's degree courses, Single-cycle degree courses and Master's degree courses;
- integrative teaching activity for a maximum number of 40 hours per year;
- tutoring activities for teaching laboratories by department call;
- research dissemination programs (Sharper, orientation activities for master degree students, etc).

Scientific collaborations and PhD student mobility (D.PHD.2.6)

- Co-tutorship agreements between the University of Perugia and foreign Universities are signed for the purpose of establishing a joint doctoral program for specific PhD students. Moreover, dual degree titles can be awarded.
- The PhD students may spend periods of study and research at qualified national or foreign universities, public or private research institutions, and companies. Ordinarily, a foreign mobility period of 6 months, even non-continuous, is expected.

Research products (D.PHD.2.7)

- PhD students are encouraged to disseminate the results of their work publishing articles in peer-reviewed international journals, filing patents, presenting oral or poster communications to congresses/schools/workshops, writing book chapters, and developing tools or software, etc. Each student is expected to publish 1 paper in a peer-reviewed international journal or to present 2 communications at international congresses/conferences/workshops.