



**UNIVERSITÀ
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1240**

Annex 2

Selection notice for admission to the PhD course of national interest in Innovation in the diagnosis, prevention and treatment of infections at epidemic-pandemic risk of the University of Siena, 41st cycle, academic year 2025-2026

Deadline for applications:

24 July 2025, 14:00 (*Central European Summer Time - CEST*)

Schedule of the PhD course with the description of the typology of positions and modalities of selection



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PhD in	Innovation in the diagnosis, prevention and treatment of infections at epidemic-pandemic risk
Coordinator	Donata Medaglini, donata.medaglini@unisi.it
Department	Medical Biotechnologies
Attendance	Mandatory
Open positions	33

	<i>n.</i>	<i>Funding institution(s)</i>	<i>Research topic</i>
Positions with scholarship			
A.	2	Università degli Studi di Siena	Innovative technologies for vaccines, drugs, diagnostics and immunological biomarkers for pandemic preparedness, mathematical models to predict the response to vaccination, the development of resistance to antimicrobial drugs and the spread of pathogens, mechanisms of T and CAR T cell suppression in viral infections (1-8)
B.	1	Università degli Studi di Firenze	Emerging antibiotic resistance mechanisms in clinically problematic bacterial pathogens: epidemiological evolution and innovative diagnostic approaches (6)
C.	1	Fondazione Biotechopolo di Siena	Vector-borne diseases in Tuscany: one Health Approach Place of work: Università Degli Studi di Firenze
D.	1	Università di Padova	Identification and characterisation of innovative therapeutic targets and new inhibitory molecules (3)
E.	1	Fondazione Biotechopolo di Siena	Development of "granuloma-like-structures" based methods for evaluation of new TB therapies (3) Place of work: Università di Padova
F.	1	Università di Pisa	Development of innovative biomedical technologies for intestinal barrier modelling (7)
G.	1	Fondazione Biotechopolo di Siena	Molecular and evolutionary studies of bacterial defences against phages (3) Place of work: Università di Pisa
H.	1	Libera Università Mediterranea	Biomarkers of the immune response associated with infections and vaccinations for epidemic-pandemic risk pathogens (7)
I.	1	Fondazione Biotechopolo di Siena	Biomarkers of the immune response associated with infections and vaccinations for epidemic-pandemic risk pathogens (7) Place of work: Libera Università Mediterranea
J.	1	Scuola Superiore Meridionale di Napoli	Study and development of innovative "drug delivery" systems for vaccines and antimicrobial drugs (5)
K.	1	Fondazione Biotechopolo di Siena	Study and development of innovative "drug delivery" systems for vaccines and antimicrobial drugs (5) Place of work: Scuola Superiore Meridionale di Napoli
L.	1	Università degli Studi di Napoli Federico II	Development of mucosal vaccination vehicles (5)
M.	1	Fondazione Biotechopolo di Siena	Study and development of advanced drug delivery systems (5) and strategies to counter the emergence and spread of antibiotic-resistant bacteria (6) Place of work: Università degli Studi di Napoli Federico II
N.	1	Università degli Studi di Torino	Biomarkers of the immune response associated with infections and vaccinations for epidemic-pandemic risk pathogens (7).
O.	1	Fondazione Biotechopolo di Siena	Study and development of innovative "drug delivery" systems for vaccines and antimicrobial drugs (5).

			Place of work: Università degli Studi di Torino
P.	1	Università degli Studi della Campania “Luigi Vanvitelli”	Design and development of monoclonal antibodies (4)
Q.	1	Fondazione Biotechopololo di Siena	Strategies to counter the emergence and spread of antibiotic-resistant bacteria (6) Place of work: Università degli Studi della Campania “Luigi Vanvitelli”
R.	1	Istituto Superiore di Sanità	Biomarkers of immune response associated with infections and vaccinations for epidemic-pandemic risk pathogens (7)
S.	1	Fondazione Biotechopololo di Siena	Biomarkers of immune response associated with infections and vaccinations for epidemic-pandemic risk pathogens (7) Place of work: Istituto Superiore di Sanità
T.	1	Vismederi	Biomarkers of immune response associated with infections and vaccinations for epidemic-pandemic risk pathogens (7) Place of work: Università degli Studi di Siena
U.	9	Fondazione Biotechopololo di Siena	Innovative technologies for vaccines, drugs, diagnostics, and immunological biomarkers for pandemic preparedness; "delivery" systems for vaccines and antimicrobial drugs; mathematical models to predict vaccination response; strategies to counteract the development of antimicrobial drug resistance; economic impact of epidemic-pandemic risk infections (1-8) Place of work: Università degli Studi di Siena
Positions without scholarship			
V.	1	Università degli Studi di Siena/ Fondazione Biotechopololo di Siena	Innovative technologies for vaccines, drugs, diagnostics, and immunological biomarkers for pandemic preparedness; "delivery" systems for vaccines and antimicrobial drugs; mathematical models to predict vaccination response; strategies to counteract the development of antimicrobial drug resistance; economic impact of epidemic-pandemic risk infections (1-8)
Positions reserved for employees of companies			
W.	1	Vismederi Srl	Biomarkers of immune response associated with infections and vaccinations for epidemic-pandemic risk pathogens (7)
X.	1	Fondazione Biotechopololo di Siena	Design and development of monoclonal antibodies (4)
<i>As described in Article 8, paragraph 2 of the selection notice, all PhD students are required to undertake a study and research period abroad of at least 180 days at suitable institutions identified in agreement with their supervisor. Only in cases of serious and justified needs the Academic Board may approve an exemption from this commitment.</i>			
Research topics			
<p>The PhD course offers multidisciplinary training in the field of epidemic-pandemic infections addressing the following research topics:</p> <ol style="list-style-type: none"> 1. Innovative technologies for diagnosis: development of innovative diagnostic techniques for rapid and accurate detection of pathogens, such as viruses, bacteria, fungi and parasites, at epidemic-pandemic risk. 2. Vaccine Technologies: design and development of new vaccines, based on innovative technology platforms, against pathogens at epidemic- pandemic risk. 3. Technologies for new antimicrobial drugs: research and development of new antimicrobial drugs, including antibiotics, antivirals, antifungals and antiparasitic, for infections at epidemic-pandemic risk. 4. Monoclonal antibodies: design and development of monoclonal antibodies. 5. Drug delivery: study and development of advanced drug delivery systems, such as lipid particles, vesicles and other nanoparticles, to improve the efficacy and safety of vaccines and antimicrobial drugs. 6. Strategies to counter the emergence and spread of antibiotic-resistant bacteria at epidemic-pandemic risk 7. Biomarkers of the immune response: discovery and validation of biomarkers of the immune response associated with infections and vaccinations. 			

8. Mathematical models to predict the response to vaccination, the development of resistance to antimicrobial drugs the spread of pathogens, and the economic impact of infections at epidemic-pandemic risk.

The PhD program aims to provide in-depth knowledge of the most advanced technologies for the development of diagnostics, vaccines and therapeutics for pandemic preparedness.

An important opportunity for the training of doctoral students is offered by the support of the Fondazione Biotecnopolo di Siena (<https://www.biotecnopolo.it/>), which finances 18 doctoral scholarships and acts as an anti-pandemic hub for research, development and production of vaccines and monoclonal antibodies against epidemic-pandemic infections.

Type of rankings	<ul style="list-style-type: none"> • Single ranking list for positions with and without scholarship (positions A to V) • Stand-alone ranking list for positions reserved for employees (position W, X)
Documents required for evaluation (to be attached during online application)	<ul style="list-style-type: none"> • Curriculum vitae et studiorum, including a declaration of the qualification obtained, with the awarding institution, and a list of any publications (attention – the CV must be signed and include the following statement: <i>I hereby authorize the treatment of my personal data present in my Curriculum Vitae, according to the Italian Legislative Decree 196/2003 and the EU Regulation 2016/679.</i>) • Research project (max. 3 pages) in English • Reference letters (no more than two) of Italian and international academics and/or research professionals (the e-mail addresses of the referees are to be indicated (please be sure to indicate the correct email); the referees will receive an automatic request and must upload the letters by 30 July 2025) • Thesis abstract of Laurea Magistrale/Specialistica/vecchio ordinamento or equivalent foreign degree translated into Italian or English (max. 1 page) • English language certification, level B2 (optional) • Only for candidates applying for the employee-reserved position: Employment contract or letter of commitment from the company guaranteeing employment for the entire duration of the PhD programme (1 November 2025 - 31 October 2028). <p>The candidate may indicate in the research project a priority between the partner universities/funding institutions (positions A-Z) and between the research topics (1-8), the preferences expressed will not be binding for the purposes of the assignment positions.</p> <p>Eligibility of foreign degrees (to be translated into Italian, English or French) is ascertained by the selection committee in accordance with relevant regulations and international agreements on the recognition of qualifications for further studies.</p> <p><u>Candidates who achieved (or will achieve by 31 October 2025) the diploma di laurea at an Italian university</u> have to specify, in their curriculum, all the data on the university path and the title of admission, in particular:</p> <ol style="list-style-type: none"> 1. University issuing the degree 2. type of <i>laurea – vecchio ordinamento/specialistica/magistrale</i>; 3. degree course name 4. list of examinations with marks 5. date of obtaining the title and final mark or expected date of obtaining the title (by 31 October 2025). <p><u>Candidates who achieved (or will achieve by 31 October 2025) their degree at a foreign university</u> (with a duration of at least four years) must specify in their curriculum:</p> <ol style="list-style-type: none"> 1. University issuing the degree 2. type of degree (min. duration four years) – <i>Bachelor’s degree/ Master’s degree</i> 3. date of obtaining the title and final mark or expected date of obtaining the title (by 31 October 2025). <p>Candidates with a foreign degree must attach to the online presentation also the following documentation:</p>

	<ul style="list-style-type: none"> • transcript – certification of the title with the list of exams and marks – with a translation in Italian or English • Diploma supplement (if available). <p>ATTENTION: Candidates with foreign qualifications admitted to the selection process are required to present, upon enrolment, a copy of the original degree and proof of authenticity (DOV, CIMEA, or diploma supplement); refer to Article 5, paragraph 8 of the selection notice.</p>
Web site for further information	https://phd-dptip.unisi.it/
Selection modalities	Evaluation of qualifications Oral examination
Admission requirements	All master's degrees (lauree magistrali, specialistiche, a ciclo unico e vecchio ordinamento)
Exam procedures	<p>The overall mark is the sum of the marks obtained in the assessment of titles, the research project and the oral interview. The minimum score for eligibility is 60/100.</p> <p>Evaluation of qualifications: up to maximum 40 points. The presence of candidates is not required for the evaluation of qualifications and the research project. The minimum score for admission to the oral examination is 20 out of 40 points.</p> <p>Oral examination: minimum score 40 points, maximum score 60 points. The examination will be held by videoconference: http://meet.google.com/jiw-tjvd-wts. The minimum score to pass the oral examination is 40 out of 60 points. The exam will consist in the presentation of the research project in English. English language proficiency will be assessed during the exam. The presentation can last up to a maximum of 10 minutes.</p> <p>The results of each part will be published on the PhD website: https://phd-dptip.unisi.it/</p>
Dates of evaluation and exam(s)	<p>Oral examinations: from 1 to 5 September 2025, by videoconference: http://meet.google.com/jiw-tjvd-wts</p> <p>The calendar for examinations will be published within 27 August 2025 on the PhD website: https://phd-dptip.unisi.it/</p>
Selection committee	The composition of the committee will be published after the deadline for submitting applications.