Somaiya School of Basic and Applied Sciences

Faculty of Science

Somaiya Vidyavihar University, Mumbai

Admission Manual

PhD Programme – Nutraceuticals

AY 2025-26 onwards

Visit for Further Details: https://www.somaiya.edu/en/phd/

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About Somaiya Vidyavihar University, Mumbai

On 26th August 2019, Somaiya Vidyavihar University, Mumbai became a reality!

We made this milestone after six decades of creating holistic teaching learning experience educational institutes of great repute. Somaiya Vidyavihar University, Mumbai has become a self finance – the first private University in Mumbai vide the Maharashtra Self-Financed Universities (Establishment and Regulation) Act 2013.

We have a dream to build and support a world-class institution, one that is proudly Indian, and excels in education, research and service. Somaiya Vidyavihar University, Mumbai will be a place where knowledge is preserved, disseminated, and new knowledge is created. It will be global in the reach of its ideas and universal in its service. Somaiya Vidyavihar University, Mumbai is a place where students and faculty can explore "Freedom of Possibilities", pursue your passion and above all, find yourself.

Our History and Vision

An all-round education must integrate Indian culture, values & morality into the curriculum.

The Somaiya Vidyavihar was founded in 1959 by late Shri K.J. Somaiya (1902-1999). Endowed with a sharp business acumen, a balanced perspective and a social bent of mind, Karamshibhai set up the Somaiya Trust in 1953 for furthering his dream of shaping young minds through quality education. For this purpose, he bought a large area of land at Ghatkopar, then considered to be distant, meagrely populated.

Our Founder, Padmabhushan Shri K. J. Somaiya founded Somaiya Vidyavihar on 9th September 1959. He later founded the Girivanvasi Pragati Mandal, The K J Somaiya Medical Trust, Girivanvasi Education Trust and sister institutions to provide access and opportunity to build a more inclusive society . In the words of Swami Vivekananda, "We want that education by which character is formed, strength of mind is increased, and the intellect expanded, and by which one can stand on one's own feet."

In six decades it has grown into a large educational complex with 34 institutions catering to diverse fields of education such as Humanities & Social Sciences, Engineering, Education, Medicine, Management, Dharma Studies, Pure Sciences and Commerce & Business Studies, with more than 39000+ Candidates and 3000+ Faculties and staff on a throbbing 50 acre campus.

With PhD programmes in various faculties, we provide an innovative platform for research aspirants to make a niche of their own to impact society and life.

About Somaiya School of Basic and Applied Sciences, SVU

The Somaiya School of Basic and Applied Sciences (SSBAS) is a newly established institution under the Faculty of Sciences at Somaiya Vidyavihar University, Mumbai. Initially it is a part of S.K. Somaiya College, SSBAS has grown into a center of academic and research excellence. With six departments, the school offers six undergraduate and eight postgraduate programs, along with a Doctor of Philosophy (Ph.D.) program in six disciplines. SSBAS is equipped with state-of-the-art research laboratories, advanced instrumentation, and cutting-edge software, fostering a seamless integration of science and technology research. The school has successfully secured ₹1 crore+ in research funding from various governmental agencies, reinforcing its commitment to advancing fundamental research for societal development.

1. Eligibility criteria for PhD Admission

Subject to the conditions stipulated in the SVU PhD Regulations, the following candidate are eligible to seek admission to the PhD Programme

1. **Education Qualification**

- i. Master's degree (2 year or 1 year) or a professional degree declared equivalent to the Master's degree by the corresponding statutory regulatory body, with at least 55% marks in aggregate or its equivalent as per UGC regulations.
- ii. Candidate seeking admission after a 4-year/8-semester bachelor's degree programme (B.Tech / B.E, B.Pharma, MBBS or BDS or BAMS or BHMS or B.Sc (Honors) or Pharma.D / Pharma.D. (Post Baccalaureate)/BCom Honours/BA Honours) should have a minimum of 75% marks in aggregate or its equivalent as per UGC regulations
- iii. A person whose Master's dissertation has been evaluated and the viva-voce is pending may be admitted to the PhD Programme but subject to completion of Master's degree before provisional admission to SVU PhD Programmes.
- iv. Candidates possessing a Degree considered equivalent to Master's Degree of an Indian Institution, from a Foreign Educational Institution accredited by an Assessment and Accreditation Agency which is approved, recognized or authorized by an authority, established or incorporated under a law in its home country or any other statutory authority in that country for the purpose of assessing, accrediting or assuring quality and standards of educational institutions, shall be eligible for admission to PhD Programme

2. **PhD Entrance Exam**

- i. **MUST** qualify a passing score of **PhD Entrance Examination of SVU.** This is a mandatory eligibility criteria for all candidates with exemptions mentioned in Point 2.(ii)
- ii. Exemption Criteria from SVU PhD Entrance Examination are:
 - 1. Candidates who qualified in UGC CSIR -NET-JRF/ ICMR-JRF / DBT-JRF (BET)/ INSPIRE/ GPAT/ICAR/JEST/ Qualified/valid GATE score in relevant branches /Prime Minister's Fellowships and those qualified in any of the UGC recognized national or state level eligibility tests with a valid fellowship/scholarship in the related subject.
 - 2. Candidates with valid GMAT score for last 2 years (1st Jan 2020 to 31st Dec 2022), minimum GMAT score 350
 - 3. Any candidates having 5 year of teaching/research experience and have published research paper in SCOPUS; Web of science journal/published patents/grant received from government agencies will be exempted from appearing for the SVU PhD entrance exam but will be required to appear for an interview at the respective departments. The exemption criteria will be applicable ONLY when relevant document are uploaded during application submission. If relevant documents are not submitted, the candidate have to appear for Entrance exam.

Note: However, the candidates who fulfill the above criteria MUST fill the application form as per the schedule displayed on the website.

3. Other Documents

- 1. UG Degree or equivalent Mark List
- 2. UG Degree certificate
- 3. PG Degree or equivalent Mark List
- 4. PG Degree or equivalent certificate
- 5. AADHAR card
- 6. Degree equivalence / eligibility certificate wherever is applicable
- 7. Transfer Certificate and /or Leaving Certificate
- 8. Migration certificate
- 9. Two colour passport size Photograph
- 10. If appearing the PG degree examination bonafide certificate
- 11. If employed, then No Objection Certificate (NOC) from the employer at the time of provisional admission

4. Important Links

UGC Notification 2022 (Link)

2. Categories of Ph D Students

- 1. Candidates with externally funded scholarships/Fellowships; (a full tuition fee waiver will be provided to candidates who join as JRF/SRF under government of INDIA research funded scheme)
- 2. Candidates who work in funded projects within the University or in approved research centres which are collaborating with the University;
- 3. Jointly guided PhD or Co-supervised PhD with International Universities;
- 4. Teaching/work integrated research candidates who are the faculty/employees in pursuit of advancing their academic qualification, recommended by the Head of the Institution and the Academic Advisory Committee. This provision is for those candidates who shall take an undertaking that their routine responsibilities would be duly attended and under no circumstances compromised. The university shall reserve the rights to consider the registration of candidates who do not adhere to these guidelines;
- 5. Teaching and Research Associates of the Somaiya Vidyavihar University.
- 6. "Somaiya Vidyavihar University Research fellow under Chancellor's Scholarships Programme".
- 7. "Any candidates having 5 year of teaching/research experience and have publish research paper in SCOPUS; Web of science journal/published patents/grant received from government agencies will be excepted from appearing for the SVU PhD entrance exam but will be required to appear for an interview at the respective departments"
- 8. Candidate is permitted to pursue studies on a part-time basis provided all the conditions stipulated in UGC 2022 regulations are fulfilled.

3. Overview of Steps involved in PhD Programme				
Sr.No.	Sr.No. Steps			
PhD Pre-selection Phase				
1.	Advertisement / Call for SVU PhD entrance exam on website / media handles			
2.	Acceptance of the applications for PhD entrance examination along with the applications processing fee			

3.	Execution of PhD entrance examination for all PhD programmes		
4.	Declaration of PhD entrance examination results		
5.	Selection process - Display of list of eligible shortlisted candidates for interview		
6.	One- on -one Interviews of shortlisted candidates before an expert panel		
7.	Display of selected candidates for provisional admission - Selection process complete		
Provis	ional Admission Phase		
8.	Provisional admission and payment of fees in accounts/admin office of the constituent unit of Somaiya Vidyavihar University, Mumbai.		
9.	Orientation and initiation of course work (1 year – 2 semesters)		
10.	First semester encompasses research methodology & publication ethics along with subject specific topic. Second semester majorly focus on building research, technical & soft skills. includes research activities, lab rotation and research proposal drafting & presentation and it evaluation.		
11.	ATKT examination for the semester I and II for unsuccessful candidates or for grade improvement		
12.	Issue of mark sheets for course work of semester I and II		
Allotn	nents & Registrations		
13.	Allotment of the guide at individual constituent unit-level/department (within the first six months of provisional admission)		
14.	Topic approval of the thesis work within 2-3 months after Qualifying course work examination		
15.	Registration for PhD programme		
PhD P	hase		
16.	Appointment of Examiners and chairman from Research Committee		
17.	Annual Progress Seminars (APS) and Intermediate Progress Seminar (IPS) for the academic year by Doctoral Advisory Committee (DAC)		
Submi	ission & defence		
18.	Approval of examiners to present pre-synopsis in one of the APS and IPS		
19.	Presentation of pre-synopsis and its approval by the examiners		
20.	Submission of thesis to COE office		
21.	Sending the thesis to reviewers		
22.	Receipt of reviews about thesis from the reviewers		
23.	The final defence of the thesis		
24.	Submission of the final corrected thesis after defence		
25.	Issue of provisional PhD certificate		
26.	Issue of PhD certificate		
	The steps and the progress evaluation of PhD students by the committee/examiners/experts will be as per the provisions of PhD regulations		

4. Pattern and syllabus of SVU PhD Entrance Examination

Paper-1 Qualitative Test – 40 marks

- a) Essay Writing 20 marks
- b) Comprehension 20 marks

(50% choice in selecting questions in paper I)

Paper – 2 Subject Specific Test – 60 marks

- a) Multiple Choice Questions 20 marks (Attempt 20 out of 30 questions)
- b) Subjective Questions 40 marks (with 50% Choice)

5. About Course Work

The course work will be of one academic year (two semesters) and out of which the first semester will be full time. It is expected that during the first semester, the student will report the college/department/section/laboratory for attending the sessions as per Timetable. The student will have to complete a total of 14 credits (semester I) + 5 credits (semester II) = total 19 credits with CGPI as per the PhD regulations to become eligible for the registration to PhD programme.

Particulars	@Total Fees per annum (₹)	
	First Year	Second Year Onwards
Tuition Fee	30,000/-	30,000/-
Development Fee	10,000/-	10,000/-
Examination Fee	10,000/-	10,000/-
Caution money Deposit (Refundable)	1,000/-	
Library Deposit (Refundable)	2,000/-	
Total (₹)	53,000/-	50,000/-
@ If paid provisional admission fee	then should be deducte	ed from total fee
Link for fees payment (Fees will be accepted via online payment gateway only and in no case, it can be paid using any other type of mode of payment and to any office/person)	https://myaccount.somaiya.edu/#/login	

7. Registration, Synopsis & Ph D Thesis Submission Fees		
Particulars	Amount	
Registration fees	5000	
Approval of Synopsis of PhD Thesis Topic	5000	
PhD Thesis Submission	10000	
Total	20,000/-	

Note:

- 1. Registration fees to be paid by the PhD scholars before submitting the application for Registration for Ph D.
- 2. Synopsis PhD Thesis Submission fees to be paid by the PhD scholars before submission of synopsis.

Program Academic Year	Particulars	Amount in Rupees (₹)	Payment Schedule
First Year	Total fee	53,000/-	Within eight days from the date of receiving the offer letter
Second Year and Onwards	Total fee	50,000/-	Within first week from the commencement of the new Academic Year
Link for fees payment (Fees will be accepted via online payment only and in no case it can be paid using any other mode of payment and to any office/person)			https://myaccount.somaiya.edu/#/login

9. Guidelines to make fee payment in Online Mode

There is a provision of ONLINE PAYMENT of college fees for student's' convenience 24x7 on or before the scheduled due date. Student will get notification from the institute in three ways.

- 1) SMS
- 2) Email
- 3) Notification on myaccount.somaiya.edu portal

In the notification there will be a link to make the payment. You just need to click on the link and follow below simple steps to make the payment.

STEP 1: Link will take you to myaccount.somaiya.edu portal. Use Somaiya SVV Net ID and password to login. Want to know more about myaccount.somaiya.edu click on https://somaiya.edu/media/pdf/SVVNetID_and_Email%20id.pdf

STEP 2: Login, select 'instalments' and click on "Pay Now".

STEP 3: System will redirect to Online Payment Gateway. Fill in the required information and follow payment options to complete the payment cycle.

STEP 4: After the successful payment, the payment receipt will be available at student's MyAccount portal

10. Admission Cancellation policy of PhD programme (All Categories of PhD Students)

If the candidate has accepted the allotted seat by paying the fees and later chooses/decides to withdraw from the programme of study, then cancellation option is available at his/her MyAccount login.

The college shall follow the below system for deduction of fees against the cancellation request for the candidate.

Sr. No.	Point of time when the application for admission cancellation is received by the college	Applicable Deduction
1	15 days or more before the date of commencement of academic term	Rs 5,000/-
2	Less than 15 days before the date of commencement of the academic term	10% of total fees
3	Less than 15 days from the date of commencement of the academic term	20% of total fees
4	On or beyond the 15th day but within six weeks from the date of commencement of the academic term	50% of total fees
5	More than six weeks from the date of commencement of the academic term	100% of total fees

Note:

- Total Fees for the program per year is Rs. 50,000/- for All Categories of PhD Students
- Tentative date of commencement of every academic term will be announced on website.

Typical Sample example for further illustration to know about cancellation charges with reference to the date of commencement of term

Refer the below example for clarification of PhD admission cancellation policy

Assume that the academic term commences from 15th July of a particular academic year. Based on this assumption, following table illustrates important dates of cancellation policy:

Illustration:

Sr.	Point of time when an application for admission cancellation is	Applicable Deduction
No.	received by college	

1	1	Cancellation on or before 30th June (up to 11.59pm)	Rs 5,000/-
2	2	Any time from 1st July to 14th July (up to 11.59pm)	10% of total fees
3	3	Any time from 15th July to 28th July (up to 11.59pm)	20% of total fees
4	1	Any time from 29th July to 25th August (up to 11.59pm)	50% of total fees
5	5	After 25th August	100% of total fees

11. Process of getting documents submitted return	
After verifications of documents, within 7 days, documents will be returned to students	

Somaiya School of Basic and Applied Sciences

Faculty of Science

Nutraceuticals

About Research Center

The term 'Nutraceutical' originates from the combination of the words 'nutrient' and 'pharmaceutical.' Thus, nutraceuticals are bioactive compounds derived from food sources that have beneficial health effect. Nutraceuticals is a multidisciplinary field which encompasses biochemistry, biology, chemistry, pharmacy and nutrition. Nutraceuticals are being increasingly used along with the traditional medical therapy for ameliorating diseases. The term 'Nutraceuticals' encompasses terms such as food ingredients, and dietary supplements that provide specific health benefits. The ever- increasing spectra of nutraceuticals has created a huge opportunity to generate scientific knowledge which would in turn validate their efficacy.

The Nutraceuticals Programme which was founded in the year 2010 has generated excellent human resources who are placed in premier institutes as scientists, educators and entrepreneurs in India as well as abroad. Faculty members of the department are working on several projects, prominent one is the project with Michigan State University, USA. The faculty members have published papers and book chapters of high impact factors. Students in the department are encouraged to participate at various competitive events. The department boosts of receiving internships for students at national level societies like Association of Food Scientists and Technologists among others.

KEY FEATURES

- Department with PhD qualified faculty.
- Dynamic and interdisciplinary curriculum for in depth understanding of Nutraceuticals.
- Opportunities for collaborative research in India and abroad.
- Laboratory support for conducting interdisciplinary research projects.
- Workshops and Guest Lectures on a regular basis.
- A National-level annual event 'ANNAKOSH' organized by the students of the department.

Eligibility at UG/PG Degree	
Branch of study at UG	Life Sciences
	Biotechnology
	Microbiology
	Biochemistry
	Botany
	Zoology
	Food science and nutrition
Branch of study at PG	Nutraceuticals
	Life Sciences
	Biotechnology
	Microbiology
	Biochemistry
	Food science and nutrition
	Dietetics
	Bioanalytical sciences Botany
	Zoology

Syllabus for Entrance Examination

Unit 1: - Human Nutrition, Health and Interventions. Balanced diet-Food groups, Food pyramid. Macro and micronutrients in human nutrition-Carbohydrates, proteins, lipids, vitamins, minerals and water - requirements, sources, functions, metabolism and effects of deficiency and toxicity of the nutrients. Nutrients interrelationship. Inborn errors of metabolism. Phytochemicals, antioxidants, prebiotics and probiotics, functional foods and nutraceuticals. Drug and nutrient interaction. Diet & nutritional therapy in disorders of obesity, underweight, gastro-intestinal tract, kidney, liver, heart, lungs, cancer, diabetes mellitus, food allergies and intolerances. Major Public Health and Nutritional problems in India-Causes, magnitude and distribution. Assessment of Community Nutritional status by Standard methods. National Nutrition Policy, National and International organizations' programmes to combat malnutrition. Nutritional epidemiology, public health aspects of human nutrition. Objectives, Principles and Importance of Nutrition education, Nutrition monitoring and Surveillance.

Unit 2: - Food Science and Processing Technologies Need & Scope of Food Science, Physio-chemical properties of foods, Methods of cooking-merits & demerits, factors affecting cooking. Sensory evaluation and Consumer acceptability, Food fortification, enrichment and supplementation. Food additives and Preservatives. Anti-nutritional factors & Toxicants in foods. Food hygiene and sanitation, Food-borne illnesses, infections and food poisoning. Food Adulteration, Food Standards, Laws & Regulations for food safety. Post-harvest losses, food spoilage and its causes. Food Processing techniques, effects on nutritional value, food packaging and labelling. Quantitative and Qualitative changes during post-harvest handling and processing of foods. Principles

and methods of food processing, drying, concentration, freezing, cryogenic freezing fermentation, irradiation, canning, sterilization, pasteurization. Processing & packaging techniques for cereals, millets and legumes, milk and milk products, fruits and vegetables, nuts and oilseeds, meat, fish and poultry. Role of warehousing corporation and Food Corporation of India on post-harvest conservation. Storage of perishable and non-perishable foods, traditional and modern food storage

- Unit 3: Introduction to Nutraceuticals: Free radicals and antioxidants: The free radical or oxidant theory of disease, Mechanisms for limiting free radical damage, Diets associated with reduced risk of chronic diseases, Evidence for benefit of antioxidant supplements, Vitamin E and dementia. Secondary plant metabolites, Terpenoids, Phenolic compounds (phenols and polyphenols), Nitrogen-containing alkaloids and Sulphur- containing compounds, Lipids and lipid related functional foods. Mechanism of action of secondary metabolites in reducing risk of chronic diseases, Plant and animal extracts: Agnus castus, Aloe vera, Bee products, Chitosan, Echinacea, Garlic, Ginger, Ginkgo biloba, Ginseng, Guarana. Kelp, Milk thistle, Saw palmetto, Spirulina, Chlorella, St John's Wort, Tea extracts. Nature, functions, supplement forms and sources, rationale for use and evidence of effectiveness of Glucosamine and chondroitin sulphate, S- adenosylmethionine, Lecithin and choline, L-carnitine, Creatine Coenzyme (ubiquinone), α-Lipoic acid. O10 Methylsulphonylmethane.
- **Unit 4**: Techniques of cellular fractionation, Extraction procedures, Batch extraction, continuous extraction and counter current extraction. Centrifuge techniques: zonal, density, gradient and ultracentrifugation techniques and their applications. Electrophoresis: zonal, paper, gel electrophoresis and isoelectric focusing and their application. Thermal method of analysis. Chromatography: Paper, TLC, adsorption, ion exchange, gel filtration, affinity, GC & HPLC. Spectroscopy: Beer-Lambert law & brief description of colorimetry, UV— VIS, Fluorescence, Infrared spectroscopy, Raman Spectroscopy, NMR, Mass spectroscopy, Flame photometry, atomic absorption spectroscopy and X-ray diffraction, ICP MS, ICP AES, General idea about hyphenated techniques in chromatography.
- **Unit 5**: Fermentation Technology: Media for microbial fermentation, Scale up of a microbial process, Bioreactor designs and types of bioreactors, Products of microbial fermentation: Primary and secondary metabolites, Product recovery and downstream processing: Separation techniques, Tangential flow filtration, micro and nano-filtration techniques, reverse osmosis, Various heating processes and heat transfer mechanisms. Mass transfer operations: drying, evaporation, concentration, particle size reduction, micronization, solvent extraction, centrifugation, and crystallization
- **Unit 6**: Sensory evaluation: Basics of organoleptic responses, Attributes of food Taste, aroma, appearance, flavor, texture, noise Senses required for sensory evaluation Sensory evaluation panels- Choosing & training panel consumer & trained panels. Types of sensory evaluation tests- Discriminative test -Triangle test, duo- trio test, paired comparison test overview of descriptive test, ranking, scoring, hedonic tests.

Sensory analysis vocabulary- General terminology, terminologies related to senses, organoleptic attribute. General outline of sensory lab- Testing area, Testing setup, Lighting testing schedule, preparation of sample, order of presentation, Role of sensory evaluation as an aid to product development.

Unit 7: - Food additives: Broad classes of food additives and their application, Preservatives, Antioxidants, Sequestrants, Surface active agents, Stabilizers, Thickeners, raising agents Bleaching and Maturing agents, sweeteners, fat replacers, acid regulators Food color and flavor: Natural and synthetic, types, properties, Applications, regulatory aspects and safety issues.

Unit 8: - Packaging for Nutraceutical Products: Introduction to Packaging: Uniqueness of Nutraceutical Packaging, Packaging Forms & their Significance, Packaging Materials (covering basic manufacturing process, applications and significance) Paper, Paperboard and CFB Glass, Metals, Basic Polymer based materials, Polymer based composite materials, Ancillary Mats, Package Material Testing. Packaging Techniques: Canning, Vacuum packaging, Modified Atmospheric packaging, Controlled Atmospheric packaging, Aseptic packaging, Passive & Active packaging, Smart & intelligent Packaging. Compatibility & Migration Studies, Accelerated Shelf-Life Testing Packaging of Nutraceuticals and Pharmaceuticals, Packaging Validation. Packaging Laws and regulatory compliance new developments in Packaging.

Details of PhD Coordinator

School Code	School / Institute Name	Name of PhD	Email ID
44	Somaiya School of Basic and Applied Sciences	Dr. Nilesh Wagh	nilesh.wagh@somaiya.edu
	Common Email ID	svu.phdcoordinators@somaiya.edu	