

3. Evaluative Report of the Department

1. Name of the Department : **Centre for Systems Biology & Bioinformatics**
2. Year of establishment : **2007-2008**
3. Is the Department part of a School/Faculty of the university? : **Yes, Faculty of Science**
4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.) : **PG, Ph.D.**
5. Interdisciplinary programmes and departments involved : Nil
6. Courses in collaboration with other universities, industries, foreign institutions, etc. : Nil
7. Details of programmes discontinued, if any, with reasons : Nil
8. Examination System: Annual/Semester/Trimester/Choice Based Credit System : **Semester System**
9. Participation of the department in the courses offered by other departments : Nil
10. Number of teaching posts sanctioned, filled and actual (Professors/Associate Professors/Asst. Professors/others)

	Sanctioned	Filled	Actual (including (CAS & MPS)
Professor	01		
Associate Professors	02		
Asst. Professors	04	03	
Others	02		

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

Name	Qualification	Designation	Specialization	No. of Years of Experience	No. of Ph.D./ M.Phil. students guided for the last 4 years
Prof. Suresh K. Sharma	Ph.D.	Coordinator	Statistical Modelling, Biostatistics, Ranking and Selection, Statistical Inference, Distribution theory	20 Years	3 (Awarded) 6 (Guiding)
Dr. Ashok Kumar	Ph.D.	Asstt. Professor	Computational structural and systems biology by molecular modeling & dynamics approach.	4 Years	1 (Guiding)
Dr. Tammanna R. Sahrawat	Ph.D.	Asstt. Professor	Network biology; Conformational studies of peptides using ab-initio quantum mechanics based approaches; Homology modeling.	5 Years	
Dr. Veena Puri	Ph.D.	Asstt. Professor	Protein Chemistry, microarray analysis and signal transduction	8 Years	1 (Guiding)

12. List of senior Visiting Fellows, adjunct faculty, emeritus professors

- (i) Prof. P. V. Bharatam “Pharmacoinformatics in anti-malarial agent design”
(NIPER, Mohali) (26-04-2011)
- (ii) Dr. M. Elizabeth Sobhia “Structure Based Drug design: Identification of Selective and Specific Inhibitors of Aldose Reductase”
(NIPER, Mohali) (26-04-2011)
- (iii) Dr. Balvinder Singh “Does phosphorylation of Ser-180 regulate the water permeability aquaporin?” (IMTECH, Sector-39, CHD) (26-04-2011)

13. Percentage of classes taken by temporary faculty – programme-wise information
Nil

14. Programme-wise Student Teacher Ratio

Name of the Programme	No. of Faculty	No. of Students	Student – Teacher Ratio
M.Sc.	4	25	6:1
Ph.D.	3	3	1:1

15. Number of academic support staff (technical) and administrative staff: sanctioned, filled and actual

No. of Staff	Sanctioned	Filled	Actual
Technical Staff	0	0	0
Administrative Staff	02	0	02(Temporary)

16. Research thrust areas as recognized by major funding agencies: PURSE-DST

17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

Project Title	Funding Agency	Total Grant
Studies on Signalling Cross talk of Ovarian Steroids: Relevance to Menstrual migraine	UGC Major Research Project	9.06 Lacs

Pre-Eclampsia screening In early pregnancy through Biochemical and ultrasonographic Markers: Diagnostic and Pathophysiological Implications	ICMR	29 Lacs
Comprehensive analysis and statistical modeling of candidate genes and biomarkers in age related macular degeneration in North-West and Central Indian cohort and their clinical correlation	DBT	-
Extent and Determinant of Cost of Acute Poisoning in Tri-city of Chandigarh-An Exploratory Study	ICMR	12 Lacs

18. Inter-institutional collaborative projects and associated grants received : Nil

a) National collaboration

b) International collaboration

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.

Studies on Signalling Cross talk of Ovarian Steroids: Relevance to Menstrual migraine	UGC	9.06 Lacs
Comprehensive analysis and statistical modeling of candidate genes and biomarkers in age related macular degeneration in North-West and Central Indian cohort and their clinical correlation	DBT	

20. Research facility / centre with

- state recognition : Nil
- national recognition : Nil
- international recognition Nil

21. Special research laboratories sponsored by / created by industry or corporate bodies : Nil
22. Publications: (July 2009 to June 2013)
- Number of papers published in peer reviewed journals (national / international): 22
 - Monographs
 - Chapters in Books *
 - Edited Books
 - Books with ISBN with details of publishers
 - Number listed in International Database (For *e.g.* Web of Science, Scopus,
 - Humanities International Complete, Dare Database - International Social Sciences Directory, EBSCO host, etc.)
 - Citation Index – range / average
SNIP
 - SJR
 - Impact Factor – range / average: Range (0-4)
 - h-index
23. Details of patents and income generated : **Nil**
24. Areas of consultancy and income generated : **Nil**
25. Faculty selected nationally / internationally to visit other laboratories / institutions / industries in India and abroad : 01
26. Faculty serving in
- a) National committees b) International committees c) Editorial Boards d) any other (please specify) : 01
 - c) Editorial Boards

Name of the faculty with designation	Name of the Boards/ Details	Position held	Duration
Prof. Suresh K. Sharma	Annals of Neuroscience	Member	2010 till date

27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).
- Faculty is encouraged to take part in refresher courses, workshops, seminars etc. to enhance their teaching and technical skills.
 - Senior Faculty shares their knowledge through guest lecturers open source material etc.

28. Student projects

- percentage of students who have done in-house projects including inter-departmental projects

Number of Students	Percentage
M.Sc. (2010-2012)	*100%
M.Sc. (2011-2013)	*100%

*Project work is compulsory for all the students in Semester IV

- percentage of students doing projects in collaboration with other universities / industry / institute : Nil

29. Awards / recognitions received at the national and international level by

- Faculty :

Prof. Suresh K. Sharma:

- Awarded **S. D. Gaur Award for “Best Paper in Environmental Sciences”**: The Research paper on “Association of Mortality and Air Pollution in Ludhiana: A Time Series Study”, has been awarded “S.D. Gaur Award”, during Indian Public Health Association National Conference Feb., 2010, held at Visakhapatnam.
- Appointed as Editorial advisory member of ‘Annals of Neurosciences’, Journal of Indian Academy of Neuroscience.
- Shiksha Rattan Award, 2011
- Best Citizen of India Award, 2012

Doctoral / post doctoral fellows : Nil

- Students : Nil

30. Seminars/ Conferences/Workshops organized and the source of funding (national / International) with details of outstanding participants, if any.

Name	Funding Agency	Dates
National Symposium on ‘Emerging Trends in Bioinformatics’	PURSE Grant	26-04-2011
Workshop on Modelling and Drug Designing	PURSE Grant	27-04-2014

31. Code of ethics for research followed by the departments: Nil

32. Student profile programme-wise: (July 2009 to June 2013)

Name of the Programme (refer to question no. 4)	Applications received	Selected		Pass percentage	
		Male	Female	Male	Female
M.Sc.	Approx. 205	04	59	100%	100%
Ph.D.	Nil				

33. Diversity of Students

Name of the Programme (refer to question no. 4)	% of students from the same university	% of students from other universities within the State	% of students from universities outside the State	% of students from other countries
M.Sc. (2010-2012)	80%	20%	Nil	Nil
M.Sc. (2011-2013)	100%	-	Nil	Nil

34. How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.

NET – 2

GATE – 4

Other competitive examinations - 2

35. Student progression

Student progression	Percentage against enrolled
UG to PG	Nil

PG to M.Phil.	Nil
PG to Ph.D.	Nil
Ph.D. to Post-Doctoral	Nil
Employed	
<input type="checkbox"/> Campus selection	
<input type="checkbox"/> Other than campus recruitment	
Entrepreneurs	

36. Diversity of staff

Percentage of faculty who are graduates	
of the same university	75%
from other universities within the State	Nil
from universities from other States from universities	25%
outside the country	Nil

37. Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period : 01 (Ph.D)

38. Present details of departmental infrastructural facilities with regard to

- a) Library : Approx. 127 Books
- b) Internet facilities for staff and students : Total Wi-Fi /Ethernet connectivity to internet
- c) Total number of class rooms : **02**

- d) Class rooms with ICT facility - **Nil**
 - e) Students' laboratories - **Nil**
 - f) Research laboratories - **Nil**
39. List of doctoral, post-doctoral students and Research Associates
- a) from the host institution/university : **Nil**
 - b) from other institutions/universities : **Nil**
40. Number of post graduate students getting financial assistance from the university :
Nil
41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology : Nil
42. Does the department obtain feedback from
- a. faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?
Yes
All issues related to teaching, learning and evaluation are discussed at the departmental meetings and implemented as a when required.
 - b. students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?
The centre utilizes the obtained feedback for the benefit of students, teachers and non-teaching staff.
 - c. alumni and employers on the programmes offered and how does the department utilize the feedback?
The centre is in touch with some of the alumni through personal contacts as well as social network. Their services are taken for placements, and making changes in the present curriculum.
43. List the distinguished alumni of the department (maximum 10) : Nil
44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.
- M.Sc. Students attend soft skills training programmes conducted by Panjab University, Chandigarh.
45. List the teaching methods adopted by the faculty for different programmes.

Teaching Methods:

- (i) Lectures
- (ii) Demonstrations
- (iii) Discussions
- (iv) Student Project Presentations
- (v) Group Projects
- (vi) Tutorials

46. How does the department ensure that programme objectives are constantly met and learning outcomes are monitored?

- Generally, lesson plans are prepared using PPT's for each course
- Regular yearly academic audits is also carried out.

47. Highlight the participation of students and faculty in extension activities.

Students and faculty visits various institutes viz. IMTECH, NABI, PGIMER and also go for excursion trips.

48. Give details of “beyond syllabus scholarly activities” of the department. : **Nil**

49. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details. : **Nil**

50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.

The students work on various computer packages to extract information related to Genes, Molecules, Biomarkers etc. and the same is presented in front of the faculty for further analysis and writing research papers.

51. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.

Strength

1. Good Strength of faculty with Guide Ph.D.
2. Campus placement for M.Sc. Students
3. Based on the feedback, necessary changes are made in curriculum
4. Research publications in peer reviewer journals.
5. Workshops/Refresher courses are conducted from time to time

Weakness

1. The Centre do not have any major projects
2. No tie ups and MoUs
3. Limited publications
4. Lacking consultancy activities
5. Less Placements

Opportunities

1. PURSE-DST grant to promote research projects
2. Training for both Faculty members and students through Workshops/Seminars
3. Consultancies and funded research projects

4. Provision for interdisciplinary research
5. Support for faculty to visit advance centres of Bioinformatics

Challenges

1. To enrich the faculty in terms of Bioinformatics
2. To establish Wet-labs
3. Required adequate funds for infrastructure
4. Space for Classrooms, seminars and Library
5. Space for computer lab and wet-labs

52. Future plans of the department.

The Centre is likely to carry out research the following areas:

Construction of Steroid reductase database

- Information system for SRD a database front-end would be developed using MySQL and PHL dealing updating and retrieval data

SRD5A2 Structure Prediction using Knowledge based consensus

- Mutations and Polymorphism in Human SRD, a 28-kDa protein has been associated with Prostate cancer. Most of these polymorphism are segregated to the different ethnic groups. Understanding the structure and folding of the native protein and its role in growth and cell cycle condition

Statistical Modeling / Biostatistics

- Statistical Models for prediction of risk factors associated with age related macular degeneration will be developed.