

Indian Statistical Institute Bangalore

The Indian Statistical Institute (I.S.I.) founded by Professor Prasanta Chandra Mahalanobis, grew out of the Statistical Laboratory set up by him in the Presidency College in Calcutta. In 1932, the Institute was registered as a learned society for the advancement of Statistics in India. Within a few years the Institute's achievements in teaching and research as well as numerous projects undertaken for the Government of India brought recognition in India and abroad. The Institute is now considered one of the foremost centres in the world for training and research in Statistics and related fields. It has a distinguished faculty, as well as excellent library and modern computer facilities. In keeping with its long tradition it has been providing professional and technical help in promoting national development. Under the able leadership of Professor Mahalanobis, the Institute also initiated and promoted the interaction of Statistics with natural and social sciences through collaborative research work; this is still the unique feature of the Institute.

The major objectives of the Institute, as given in its Memorandum, are :

- a) to promote the study and dissemination of knowledge of Statistics, to develop statistical theory and methods, and their use in research and practical applications generally, with special reference to problems of planning of national development and social welfare.
- b) to undertake research in various fields of natural and social sciences with a view to the mutual development of Statistics and the sciences;
- c) to provide for, and undertake, the collection of information, investigation, projects and operational research for purposes of planning and the improvement of efficiency of management and production.

The Institute has acquired a special distinction in India for its activities since 1930's relating to collection and analysis of information of social, economic and demographic characteristics in India, in particular, through the national sample surveys. It may be mentioned that the Draft-Plan frame, accepted as the basis for the formulation of the Second Five Year Plan, was prepared by Professor Mahalanobis in cooperation with many eminent economists in the Institute and from abroad. Also, for more than sixty years the Institute has been providing training in Statistics to central and state government officials from India as well as from countries in Asia, Africa and the Far East.

The research done in the Institute, beginning with the work of Professor P.C. Mahalanobis, Professor R.C. Bose, Professor S.N. Roy and Professor C.R. Rao, has won the Institute a unique place in the world of Statistics. *Sankhya*, the Indian Journal of Statistics, published by the Institute since 1933, carried much of their work in its early issues and has grown into a leading journal in Statistics. A large number of Indian statisticians and probabilists who have won international fame have been scholars of members of the Institute's faculty. The Institute has on its faculty several well-known statisticians, mathematicians, computer scientists, economists and scientists in other fields, among whom are fellows of the Indian National Science Academy and the Indian Academy of Sciences, recipients of the S.S. Bhatnagar Prize, G.D. Birla Award for Scientific Research and the Mahalanobis Memorial Medal and fellows of many other scientific societies in India and abroad.

Professor P.C. Mahalanobis was the first Director and guided the affairs of the Institute till his death in June 1972. He was succeeded by Professor C.R. Rao, who held the position till 1976 and later became a National Professor and continues to be associated with the Institute.

The Institute has a long tradition of collaborating with eminent statisticians, mathematicians and other scientists from all over the world and having their active participation in its teaching and research programmes. Sir R.A. Fisher was a frequent visitor and collaborator. Professor J.B.S. Haldane joined the Institute in the late fifties and worked in the Institute for several years.

The Institute has been offering formal courses in Statistics leading to certificates and diplomas since the late thirties. Post - M.Sc., advanced course in Statistics was started in the late forties. In 1959, in recognition of the role of Statistics as a key technology of the modern times and the importance of the Institute in the development and application of Statistics, the Parliament of India enacted the Indian Statistical Institute Act, declaring it an Institution of National Importance and empowering it to grant degrees and diplomas in Statistics. The B. Stat. (Hons.) and the M.Stat.

degree programmes in Statistics were introduced in the Institute with the philosophy that the academic training of a statistician should encompass the basic principles of Statistics along with its theoretical and methodological development, not merely in abstract formulation, but also in relation to concrete problems arising from natural and social sciences. The curricula for these degree programmes were developed accordingly. Since the inception of these programmes 621 students have passed the B.Stat. (Hons.) examination and 1249 students have obtained the M.Stat. degree. The Institute also introduced research programmes and 269 students so far received the Ph.D degree from the Institute.

The Diploma in Computer Science was started in the Institute in 1969 and upgraded to the M.Tech. degree in 1978. Till 2001, 357 students received the M.Tech. (CS) degree of the Institute. The Institute also offers Certificate and Diploma courses in Computer Programming and Application.

In the early fifties the Institute initiated the use of Statistical Quality Control and Operational Research (SQC & OR) in India, and started to develop these fields through theoretical and applied research, practical training in industry and consultation work. The Institute in Calcutta, its two centres in Delhi and Bangalore, and a network of service-cum-research units in other cities in India have many experienced and highly qualified personnel in SQC & OR. The Institute used to conduct a postgraduate diploma course in SQC & OR which was upgraded to an M.Tech. degree course in Quality, Reliability and Operations Research in 1989. Till 2001, 288 students received the M.Tech. (QROR) degree of the Institute...

The Indian Statistical Institute Act was amended in 1995 empowering it to grant degrees and diplomas in Statistics, Mathematics, Quantitative Economics, Computer Science and such other subjects related to Statistics, as may be determined by the Institute from time to time. From the year 1996 the Institute has introduced a Master of Science (M.S.) degree course in Quantitative Economics. 62 students have received M.S (QE) degree since the inception of this programme.

The Institute has a long history of the use of computers and, since the early fifties, has made use of successively newer generation equipment. The Electronic Computer Laboratory of the Institute was established in 1950. The first electronic computer in India, an HEC-2M, was installed in the Institute in 1956, and one of the foremost formal courses of computer sciences in the country started in the Institute in 1962. The Institute has a number of computer systems in Calcutta, Delhi, Bangalore, Chennai and Hyderabad, and the Computer and Statistical Services Centre at Calcutta has SUN ENTERPRISE E3000 Server, Digital Alpha 4100 Server, IBM AS400 Server, several SUN Workstations and a large number of PCs. Campus wide Network connecting different buildings / units of the Institute at Calcutta has

been installed in 1999. The Institute has INTERNET connectivity at Calcutta , Delhi and Bangalore Centres. The practical classes of the degree programmes have been designed to make use of the electronic computers.

The International Statistical Education Centre, established in the Institute in 1950, is run in collaboration with the International Statistical Institute under the auspices of the UNESCO and the Government of India. This Centre has been providing training in Statistics to sponsored students mainly from Asia, Africa and the Far East. The Centre also offers various short-term courses in Statistics.

The Central Library of the Institute is located in Calcutta with a network extending to other locations of the Institute. Over the years, the Library of the Institute has attained the distinction of having one of the richest collections in the country, particularly in the fields of Statistics and related disciplines. The Central Library in Calcutta has over 2,20,000 volumes of books and journals besides many official reports, reprints, maps, microfilms and microfiches. It receives about one thousand scientific and technical journals annually. The library has acquired database on CD-ROM and further computerization of library facilities is in progress. The library has developed a separate collection of books and journals in Mathematics and Statistics known as Eastern Regional Centre of NBHM collection out of the grants from National Board for Higher Mathematics. Students of the Institute have easy access to the library shelves. The Institute offers a course leading to Associateship in Documentation and Information Science at the Bangalore Centre.

Most of the research and teaching of the Institute takes place in three campuses located in Calcutta, Delhi and Bangalore. Each campus has hostels for students, residential quarters for the faculty and a guest house, besides recreational and medical facilities. At each of the these three campuses the Institute has a distinguished and experienced faculty in theoretical and applied statistics, statistical quality control and operations research, mathematics and economics. In Calcutta, where the headquarters of the Institute is located, there are strong groups of scientists in many other disciplines, such as computer science, population studies, physics, chemistry, agriculture including fishery science, botany, embryology, biochemical epidemiology, nutrition and health, geology, anthropology and human genetics, biometry, linguistics, psychometry and sociology. Moreover, in the Bangalore Centre, there is a strong group working in Information Science. These scientists are engaged in research work in their respective disciplines along with collaborative work with the statisticians of the Institute.

Current Academic Programmes

	Programme	Duration	Venue
Degree	B. Stat. (Hons.)	3 years	Calcutta
	B. Math. (Hons.)	3 years	Bangalore
	M. Stat.	2 years	Calcutta, Delhi, Bangalore
	M.S. in Quantitative Economics	2 years	Calcutta, Delhi
	M.Tech. in Computer Science	2 years	Calcutta
	M.Tech. in Quality, Reliability	2 years	Calcutta
Diploma	Part-time Certificate / Diploma in SQC & OR*	1 + 1 years	Mumbai, Chennai
	Certificate / Diploma in Computer Programming and Applications* Associateship	1 + 1 years	Mumbai, Chennai
Associateship in Documenttaion and Information Science		2 years	Bangalore
Certificate	Part-time Course in Statistical Methods and Applications*	1 year	Calcutta, Delhi
	Part-time Course in SQC	6 months	Bangalore, Hyderabad
	Intensive Course in Programming and Application of Electronic Computers*	10 weeks	Calcutta
Fellowship	Junior / Senior Research Fellowship Specialist Development Programme in SQC & OR*	2 + 2½ years 2 years	Calcutta, Delhi, Bangalore See section 6.14

Research courses for Junior and Senior Fellows are offered in some discipline.

The Institute also offers courses leading to certificates, diplomas etc., in collaboration with the International Statistical Institute and the Central Statistical Organization.

	Programme	Duration	Venue
International Statistical Education Centre (ISEC)	Statistical Training Diploma	10 months	Calcutta
Courses in collaboration with the Central Statistical Organisation (CSO)	Special courses for selected Individuals or small groups	3 to 12 months	Calcutta
Central Statistical Organization Courses	Junior Certificate Course in Statistics	5 months	Calcutta
	ISS Probationer's Course in Statistical Methodology	6 weeks	Calcutta Delhi
	Junior Certificate Course in Statistics Specialized Training	3 months	Calcutta

The Institute at present awards the following doctorate degrees for research in the fields of Statistics / Mathematics / Quantitative Economics / Computer Science.

Doctor of Philosophy (Ph.D), Doctor of Science (D.Sc.)

Stipends, Allowances etc.

Deserving non-sponsored students and research fellows admitted to various programmes receive stipends and contingency / book grants as given below and are not required to pay any tuition fees.

Programme	Stipend / Fellowship	Contingency / book grant
B.Stat. (Hons.)	Rs. 500 per month	Rs. 1000 per year
B. Math.(Hons.)	Rs. 500 per month	Rs. 1000 per year
M.Stat. / M.S. in QE	Rs. 800 per month	Rs. 1250 per month
M.Tech. in CS / QROR	Rs. 2500 per month	Rs. 3000 per year
Junior / Senior Research Fellowship	Rs. 500 / 5600 per month +HRA as per rules	Rs. 2500 per year
Special Development Programme in SQC & OR	Rs. 5600 per month + HRA as per rules	Rs. 2500 per year
Associateship in Documentation and Information Science	Rs. 1000 per month	Rs. 1250 per year

A Special Fellowship of Rs. 12,000 per month is also available for outstanding candidates in each of the subjects: (i) Statistics (ii) mathematics (iii) Computer Science and (iv) Economics.

Stipend / Fellowship granted to a student may be reduced or completely withdrawn if the academic progress, attendance in class, or character and conduct of the student are found to be unsatisfactory. Stipends are granted in the first instance for one semester / academic year only. They are renewed periodically if the progress of the student is found to be satisfactory. Students receiving stipends and leaving in the middle of a course have to refund the stipend / contingency grant received.

At the end of each year / semester, prizes are also awarded for outstanding performance in examinations.

A Special Fellowship of Rs. 12000 per month is also available for outstanding candidates in each of the subjects (i) Statistics (ii) mathematics (iii) Computer Science and (iv) Economics.

Admission Procedure

Admission to the academic programme is strictly based on the merit of the candidates as judged from their academic records and performance in appropriate selection tests and interviews. The selection tests are held at a number of centres in India. Section 6 gives details of eligibility conditions and selection tests for the programmes offered. If at any stage of the selection process it is found that a candidate does not satisfy the eligibility conditions, his / her application will not be processed any further. Meeting the minimum eligibility requirements does not necessarily entitle a candidate to take the selection tests or be called for interview or be selected. Eligibility requirements may be relaxed in some cases at the discretion of the Institute. The decisions of the Institute in these matters are final. Canvassing in any form disqualifies a candidate from being selected.

If a student fails a course and is not allowed to repeat, he / she is not eligible for readmission to the same course.

In some programmes there is a provision for employers to sponsor suitable candidates employed by them. Details of this scheme are given separately under the appropriate programmes.

Note : Sample questions and / or the syllabi for the selection tests are sent to the candidate along with admit cards after the applications are processed.

These courses are organised by the Central Statistical Organisation (CSO) of the Government of India, jointly with the Indian Statistical Institute, and are designed to equip statistical officers and probationers of the Indian Statistical Service with advanced methods and to enable them to undertake higher responsibilities in their departments.

Further information regarding the course may be obtained from Director General, Central Statistical Organization, Sardar Patel Bhawan, Sansad Marg, New Delhi - 110 001.

Professional Examinations

The Indian Statistical Institute holds examinations to test proficiency of candidates in the theory and practice of analysis of statistical data, for the award of the following diplomas:

- i. Junior Diploma in Statistics
- ii. Senior Diploma in Statistics

These examinations are separate from and independent of the examinations held for the award of degrees, diplomas and certificates on the basis of training given in the Institute. The Government of India recognizes the Senior Diploma in Statistics as equivalent to a Master's degree in Statistics and the Junior Diploma in Statistics as equivalent to a Bachelor's degree in Statistics for employment purposes.

These examinations are held at least once a year; but if the number of candidates expected to appear justifies it, the Examinations Committee may hold any or all the examinations twice a year. Such examinations are held usually in or about the months of May and November, currently at seven centres - Bangalore, Mumbai, Calcutta, Delhi, Hyderabad, Lucknow and Chennai.

Further information regarding these examinations may be obtained from Secretary, Examinations Committee, Indian Statistical Institute, 203 B.T. Road, Calcutta - 700 108

Doctoral Awards

Doctor of Philosophy

The degree of Doctor of Philosophy is awarded to a candidate for original

contributions in a chosen field of research in theoretical or applied statistics. For this purpose, it is necessary for an applicant to register himself / herself as a candidate for this degree and subsequently to submit a thesis embodying the research work done by him / her for evaluation by a panel of examiners. In exceptional circumstances, a candidate may submit his / her published work.

If a candidate satisfies one of the following four conditions then the Ph.D. - D.Sc. Committee may, at its discretion, allow such a candidate to register for the Ph.D. degree.

- (i) The candidate has successfully completed M.Stat., M.Tech. in Computer Science or the postgraduates diploma course or Two / Three year Advanced Statistician's Course of the Indian Statistical Institute.
- (ii) The candidate has successfully completed one of the research courses of the Institute.
- (iii) The candidate is a worker of the Institute engaged in research involving the use of Statistics for at least three years and possesses at least a Bachelor's degree from a recognized university and who, in the opinion of the Ph.D. - D.Sc. Committee, possesses sufficient knowledge of current statistical theory and practice.
- (iv) The candidate has either a Master's degree in a relevant subject of any Indian University or the Statistician's Diploma / Senior Diploma in Statistics of the Institute and has been engaged in research in a recognised research organisation for at least three years, provided he / she spends at least one year at the Institute under a specified supervisor. At the discretion of the Ph.D. - D.Sc. Committee, the residence requirement may be reduced in exceptional cases by a period not exceeding six months. Five-year technological and medical degrees are considered equivalent to Master's degree. However, four-year technological and medical degree candidates, with sufficient training and / or published research work in Statistics and allied fields, may also be considered equivalent to Master's degree holders.

The Ph.D. - D.Sc. Committee, before allowing registration, may recommend that such a candidate be admitted to a research organization to do research work under a specific supervisor who will sponsor the candidate's registration as and when he thinks that the candidate has shown sufficient ability to proceed with his work for a thesis.

A candidate should apply for registration in the prescribed form (in duplicate)

Doctor of Science (D.Sc.)

This is an award for outstanding published work.

Eligibility : The D.Sc. degree is awarded only in exceptional cases on the basis of outstanding published work. Only those who satisfy one of the following requirements are considered for the award.

- (i) B.Stat. (Hons.) degree or the Statistician's diploma of the Indian Statistical Institute and at least eight years of independent research work in Statistics.
- (ii) M.Stat. degree or Certificate of successful completion of the Two / Three year Advanced Statistician's course of the Indian Statistical Institute and at least four years of independent research.
- (iii) Ph.D. degree of the Indian Statistical Institute at least two years of subsequent research.
- (iv) At least eight years of research work in the field of Statistics after the Bachelor's degree of a recognised university of which at least one year of work must be at the Indian Statistical Institute.

All correspondents regarding registration and other matters connected with Ph.D and D.Sc. degrees may be addressed to Convenor, Ph.D - D.Sc. Committee, Indian Statistical Institute, 203, B.T. Road, Calcutta - 700 0108.

Research Associateship

The Institute recruits Research Associates from time to time, for its different Divisions / Units. This is done based on the availability of bright post-doctoral fellows having potentiality for being absorbed as lecturers in the Division / Unit.

Facilities

Among the facilities available in the Institute, the following may be mentioned, besides the library and the computer facilities mentioned earlier.

Hostel

The Institute maintains hostels for male and female students in the Institute premises in Calcutta, Delhi and Bangalore. However, it may not be possible to accommodate all degree / diploma students in the hostels. Adequate sports and recreation facilities are made available to the students.

Limited medical facilities are available free of cost at Calcutta, Delhi and Bangalore campuses.

The Institute campus in Calcutta is about 12 Km from the city centre, the Bangalore and Delhi campuses are about 20 Km from the respective city centres.

Placement of students

Students who undergone the B.Stat. (Hons.), M.Stat., M.S. (QE), M.Tech. (CS), M.Tech. (QROR) and other degree, diploma / certificate courses of the Institute and those having the Ph.D degree of the Institute are now well-placed in government and semi-government departments, public and private sector undertakings, industrial concerns, consultancy agencies, research institutions and establishments of higher education in India as well as abroad. Most of the students of the Institute get employment offers or admission to some Ph.D programmes even before they complete the qualifying examination.

There is a Placement Committee in Calcutta which arranges campus interviews by prospective employers.