



RESEARCH CAPACITY BUILDING PROGRAM (RCBP)

PART B (DATA ANALYTICS IN R)



gIFT

GULATI INSTITUTE OF
FINANCE AND TAXATION



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GIFT initiated the Research Capacity Building Program (RCBP) in 2019-20 to facilitate the creation of an interactive learning platform for research capacity building of PhD scholars. Conceived as a program that goes beyond the conventional research methodology program, RCBP aims at facilitating the development of different capabilities that enable the scholars to prepare a good research proposal and its implementation. It is accomplished inter alia by interactions with eminent scholars on the making of a good Ph D thesis, lectures on databases and data collection along with the building up of quantitative and qualitative analytical skills to carry out research work with rigour and depth. The program also provides an opportunity for the scholars to present their research problem and get benefitted from eminent scholars and peers.

RCBP is a two semester long programme, divided into two parts: (A) Research Methodology and (B) Data Analytics in R. Part A is designed to equip participants with integrated learning of methodological tools that scholars may need during the life cycle of their doctoral research and beyond. The course intends to give minimum skills in major areas so that scholars are able to independently learn advanced levels if needed for their research. Part B is to make participants proficient in statistical computing methods. After successful completion of the course, they are expected to successfully apply their programming skills to model social science problems.

Considering the imperative of reducing the dependence on proprietary software, RCBP envisages to equip the scholars to undertake data analysis using R software. It intends to facilitate an interactive learning platform for research capacity building of Research Scholars and make participants proficient in programming and statistical computing methods. A total of 40 teaching hours covering five modules will be offered in online mode. Participants will learn to use modern coding approaches in R, i.e., use of standard packages in R such as 'dplyr', 'tidyr' and 'ggplot2' for manipulation, analysis and visualisation of data. The course curriculum is detailed in Section 5, and the medium of instruction and evaluation will be in English

Session commences (Part B)- October 20, 2021

Timings: Tuesday, Wednesday & Thursday; 5-6 pm

Applicants are expected to have a Masters' Degree in any Social Science/ Natural Science discipline. Masters Degree students (Final Year) are also eligible. The students who are currently enrolled MPhil/PhD programs of any Social Science/ Natural Science discipline are especially encouraged to apply. Faculty members in any social science/natural science discipline of various colleges and universities aiming to refresh their knowledge and seeking to learn new tools of data analytics may find the programme highly useful. There is no age limit for joining this course. A basic understanding of statistics and/or econometrics would be desirable.

How to apply: Interested candidates may submit their application form along with a copy of their master's degree and marklist and remit the prescribed fees ONLINE only. For the online application form, follow the RCBP link on the GIFT website, www.gift.res.in or visit the following google form: <https://forms.gle/p8oGAZNTTCffNjrt8>

Attachments:

1. Attach a self-attested copy of Master's/M. Phil/Ph.D., Certificate.
2. Ongoing Master's Degree students shall attach a self- attested copy of first year marksheet.
3. Attach identity copy of your proof (PAN/AADHAR/PASSPORT)
4. Attach a copy of the No-Objection Certificate (NOC) from your department/institution (if applicable)
5. Attach a letter from the head of the department endorsing your eligibility for the course fee waiver (if applicable)
6. Attach a copy of NEFT payment proof specifying the details like name, amount, mobile number & email id & NEFT payment Reference number.

Last date for submitting filled up application form for Part B along with Fee Receipt – October 17, 2021.

Admission: Admission to the RCBP program will be based on duly submitting the google form along with the course fee.

Course Fee

Category	Data Analytics using R	
Students	Net Fee=3814	GST (9% CGST & 9% SGST)=686
	Total Fee (including GST) =4500/-	
Faculty	Net Fee=5508	GST (9% CGST & 9% SGST)=992
	Total Fee (including GST) =6500/-	

Instalment:

Those who are opting for the program, the instalment option is also available:

Instalment	First Instalment (To be paid at the time of submitting the application form)	Second Instalment (To be paid after 20 lectures)
Students	Net Fee=2542	Net Fee=1271
	GST (9% CGST & 9% SGST) =458	GST (9% CGST & 9% SGST) =229
	Total Fee (including GST) =3000/-	Total Fee (including GST) =1500/-
Faculty	Net Fee=3390	Net Fee=2119
	GST(9% CGST & 9% SGST) =610	GST (9% CGST & 9% SGST) =381
	Total Fee (including GST) =4000/-	Total Fee (including GST) =2500/-

Fee waiver: Full course fee waiver may be considered for the ongoing Masters Students and full-time registered PhD scholars without any financial assistance from the Universities or any other fellowship such as UGC JRF/ ICSSR upon submitting a letter from the head of the department /school/institute. Those who have deregistered from the program is not eligible for fee waiver. The applicants applying for waiver need not pay any fee initially; instead, the letter must be enclosed with the application form. The number of such participants shall be limited to 25% of the total intake, and the waiver may be provided first come first served basis.

Payment of Fee: All fees should be paid through NEFT only. No fees will be collected in cash, by cheque or by demand draft.

NEFT Details

Beneficiary Name: Registrar Gulati Institute of Finance and Taxation
 Bank Name & Branch: SBI & Sreekariyam Branch (Thiruvananthapuram)
 Bank Account Number: 35399367545
 IFSC Code: SBIN0006686

Refund of Fee: Fees once paid will not be refunded. However, if the Institute rejects the application, the fees remitted will be refunded after deducting administrative charges as decided by the Institute.

Communication to Participants: All communications to the participants regarding admission, dates, and examinations will be communicated through email.

Module 1: Introduction to R and R Studio

Introduction to R interface and R Studio. Basics of R programming, R Markdown files, Primitive Object Types: Vectors, List, Matrices, Arrays, Factors, Data frames.

Module 2: Loops and Functions in R

for, while and if-else loops in R. Functions in R: functions vs. loops; application of R functions

Module 3: Working with Data

Importing and exporting data, data extraction: NSSO/ASI, data cleaning, data formatting and wrangling, Accessing external databases from R console: Yahoo Finance/WDI and other free data sources. Introduction to tidyverse.

Module 4: Data Analysis-I

Summary statistics: correlation and covariance; probability distributions, sampling, hypothesis testing: T test, F test, Chi-square test. Data Visualization

Module 5: Data Analysis-II

Regression in R, Constructing an OLS model, Pre-estimation and post estimation diagnostic testing, ANOVA, Forecasting, Dummy variable regression, Logistic regression models.

References

Data analytics with R, Bharti Motwani (1st Edition) , Wiley, 2019

The R Book, Michael J Crawley (2nd Edition), Wiley, 2018

An Introduction to Statistical Learning: with Applications in R (Springer Texts in Statistics) Gareth James et al. (7th Edition), Springer, 2017

Econometrics in R, Grant V Farnsworth, Ebook, <https://cran.r-project.org/doc/contrib/Farnsworth-EconometricsInR.pdf>

6 **Logistical Support**

GIFT has well-equipped classrooms, a computer lab, and a leading research and reference library.

7 **Attendance and Certificate**

The students are supposed to maintain 75% attendance to get the course certificate.

Prof. A V Jose, Honorary Fellow & Former Director

https://www.gift.res.in/faculty/faculty_details/32/Prof-A-V-Jose

Prof. D Narayana, Honorary Fellow & Former Director

https://www.gift.res.in/faculty/faculty_details/31/Prof-D-Narayana

Prof. K J Joseph, Professor & Director

https://www.gift.res.in/faculty/faculty_details/65/Dr-K-J-Joseph

Dr. Vijayamohan Pillai N, Honorary Fellow

https://www.gift.res.in/faculty/faculty_details/43/Dr-Vijayamohan-Pillai-N

Smt. L Anitha Kumary, Associate Professor

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Dr. N Ramlingam, Associate Professor

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Dr. Thomas Joseph, Associate Professor

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Smt. Jenny Thekkekara, Associate Professor

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Dr. Md Zakaria Siddiqui, Associate Professor

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Dr. Parma Chakravarti, Assistant Professor

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Dr. Santhosh Kumar Dash, Assistant Professor

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Dr. Anoop S Kumar, Assistant Professor

https://www.gift.res.in/faculty/faculty_details/68/Dr-Anoop-S-Kumar

Dr. Kiran Kumar Kakarlapudi, Assistant Professor

https://www.gift.res.in/faculty/faculty_details/66/Dr-Kiran-Kumar-Kakarlapudi

Dr. Renjith P S, Assistant Professor & RCBP Coordinator

https://www.gift.res.in/faculty/faculty_details/62/Dr-Renjith-P-S

Along with GIFT faculty, experts from other universities/institutes will join to deliver special lectures in some of the modules.

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RESEARCH CAPACITY BUILDING PROGRAM (RCBP)

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