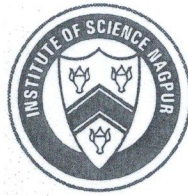# UGC Sponsored Career Oriented
Certificate Course in Statistical Package R

List of Documents

1 Release of Grant letter
   (Common for all the three courses)
2 Letter by Director ,IOS to the Director BCUD for the sanction of Syllabi
   (Common for all the three courses)
3 Syllabus approval letter by Director BCUD
4 Copy of Syllabus
5 Yearwise list of students who successfully completed the course
6. Sample Copy of Certificate distributed to students
7 Yearly Report
8 Purchase file details

Dr K S Bhanu
Course Coordinator
Prof and Head ,Dept of Statistics ,
Institute of Science ,Nagpur

INSTITUTE OF SCIENCE, NAGPUR

R.T. ROA D, Civil Lines, Nagpur – 440001(M.S.) India

Affiliated to RTM Nagpur University

UGC SPONSORED

CAREER ORIENTED
CERTIFICATE COURSE IN STATISTICAL PACKAGE - R

Certificate

This is to certify that Mr. /Ms --

of class ------------ /college ---

has successfully completed **UGC** Sponsored **"Career Oriented**

Certificate Course in Statistical Package - R" Organized by the

Department of Statistics, Institute of Science, Nagpur during the

academic year 20 . .

Director	Course Coordinator	Director, BCUD
Institute of Science.	Department of Statistics	RTM Nagpur University,
Nagpur	Institute of Science, Nagpur.	Nagpur.

पंजाब नैशनल बैंक **punjab national bank**

ECE HOUSE, A-28, KASTURBA GANDHI MARG, NEW DELHI-110001
(PHONE NO.23323357, 23351157, 23317856, FAX: 23318570, 23324788)

REGISTERED / SPEED POST

3047-49
March 30/03/2012

Principal,
Institute of Science,
Nagpur – 440001
(Maharashtra)

Dear Sir,

Subject : Transfer of funds

As per instructions of University Grants Commission, we have transferred by way of draft a sum of
Rs.27,00,000/- as per details given below:

1	Draft No.& date	UFR 794551 Dt 30/03/2012
2	Amount of Draft	Rs.27,00,000/-
3	Draft drawn on branch	RCC Nagpur
4	Sanction letter No. & date	F.No.4-163/2011 (COC) dated 3.1.2012
5	Amount of the Grant	Rs.27,00,000/-
6	Purpose of grant-in-aid	Career Oriented Courses

Copy of Sanction letter and draft in original are enclosed.

Thanking you,

Yours faithfully,

CHIEF MANAGER
(M-8800692323)

Encl.: (2)

Copy to : The Under Secretary, University Grants Commission, Bahadurshah Zafar Marg, New
Delhi- 110 002 for information please.

CHIEF MANAGER

पंजाब नैशनल बैंक ई.सी.ई. हाऊस, कस्तूरबा गांधी मार्ग, नई दिल्ली
punjab national bank ECE House, K.G Marg, NEW DELHI - 110001

वि.सं.
D.No. **1120**

मांगे जाने पर ON DEMAND PAY

दिनांक
Date 30-03-2012

या उनके आदेश पर OR ORDER

रुपये RUPEES PRINCIPAL, INSTITUTE OF SCIENCE,

Twenty Seven Lakh only

प्राप्त मूल्य के बदले अदा करें
FOR VALUE RECEIVED

UFR 794551

शाखा क्रमांक Branch Serial No.
0009/2012

₹ **27,00,000.00**

पंजाब नैशनल बैंक
punjab national bank

अदाकर्ता शाखा एवं वि०सं० Drawee Branch with D.No.

(NOT OVER Rs.2700000/-)

D.No. 2887 - FINACLE -
RCC NAGPUR FINACLE

प्राधिकृत हस्ताक्षरकर्ता जी.बी.पी.ए.सं.
AUTHORISED SIGNATORY WITH GBPA No.

प्राधिकृत हस्ताक्षरकर्ता जी.बी.पी.ए.सं.
AUTHORISED SIGNATORY WITH GBPA No.

9 8 7 6 5 4 3 2 1

केवल छ: महीने के लिए वैध VALID FOR SIX MONTHS ONLY

⑈794551⑈ 0000 24000⑆ 16

30/3/12

UNIVERSITY GRANTS COMMISSION
35-FEROZSHAH ROAD
NEW DELHI-110 001

F. No. 4- 163/2011(COC)   December, 2011

The Under Secretary (FD-III)
University Grants Commission
New Delhi-110002

Sub: - Release of Grant-in-aid to **Institute of Science, Nagpur, Dist. Nagpur, Maharashtra-440001** under the UGC scheme of Career Oriented Courses-reg.

Sir,

    With reference to the proposal submitted by **Institute of Science, Nagpur, Dist. Nagpur, Maharashtra-440001** under the UGC scheme of Career Oriented Courses, I am directed to convey the approval of the University Grants Commission for starting the following Career Oriented Courses in the above mentioned College from the academic year **2011-12**.

Courses Approved	Seed Money approved (Rs. in lakh)	Grant released (90%)
Science		
1.Certificate Course in Medical Electronic Technician	Rs. 10.00	Rs. 9,00,000/-
2. Certificate Course in Statistical Package R	Rs. 10.00	Rs. 9,00,000/-
3. Certificate Course in Plant Biotechnology	Rs. 10.00	Rs. 9,00,000/-
Total	Rs. 30.00	Rs. 27,00,000/-

    I am also directed to convey the sanction of the University Grants Commission for payment of **Rs. 27,00,000/-** (Rupees **Twenty Seven Lakh only**) to the Principal, **Institute of Science, Nagpur, Dist. Nagpur, Maharashtra-440001** as 90% grant (Seed Money) under the scheme of Career Oriented Courses.

-2-

Year wise list of students who have successfully completed
Certificate course in Statistical Package R

Sr No	List of the Students				

Sr No	2012-13	2013-14	2014-15	2015-16	2016-17
1	Ku.N.D.Bhawar	Ankita Takale	Ku.Kamini Mohadikar	Ku. Rohma Azeem	Ku. D. M. Korde
2	Ku.B.R.Shraddhalwe	Aradhana Shinde	Ku.Shalaka Dudhalkar	Ku. Neha. K. Kundu	Ku. R. R. Nandurkar
3	Ku.L.S.Lakhade	Avish Patil	Sh.Saurabh D.Moon	Ku Aparna Bire	Ku. V. P. Hemnani
4	Ku.S.D.Kullarkar	Kalyani Angarwar	Sh.Sangam Bansod	Ku Archana Gadge	Ku.L.S.Avula
5	Ku.M.N.Chakrabar	Kartik Tathe	Sh.Ninad Sagdeo	Saujanya Punjarwar	Mr. A. N. Sidam
6	Ku.A.A.Kalambe	Krupali Makawana	Sh.Vikram Singh	Khan	Ku. T. G. Borkar
7	Ku.D.J.Gaikwad	Madhuri Lakhanani	Ku.Chetana Borkute	Ku. Asafiya . A. Sheikh	Mr. S. A. Mange
8	Ku.A.R.Pali	Meenakshi Srivastava	Ku.Janvi Bamrotwar	Ku. Priyanka . S. Pillay	Mr. N. T. Harshe
9	Ku.D.A.Khatri	Neha Bhagat	Ku.Snehal Shembe	Ku. Kameshwari . D. Zade	Ku. Y. J. Kanojiya
10	Ku.R.R.Saluja	Nilesh Patil	Ku.Shrawati Meshram	Ku. Juili. S. Andeo	Ku. A. K. Bire
11	Ku.D.P.Tadke	Poonam Chintalwar	Ku.Sujata Kukade	Ku. Pallavi. D. Potbhare	Ku. P. V. Bhongade
12	Ku.B.R.Gadpal	Poonam Dehankar	Ku.Pallavi Ghonmode	Ku. Asmita . A. Gomase	Ku. D.R. Nigam
13	Sh.P.M.Joshi	Priya Jagare	Ku.Asha Kayarwar	Ku. Kartiki .S. Hinge	Ku S R Sharma
14	Sh.K.V.Thakur	Rahul Gudhe	Sh.Ashish Kadoo		
15	Ku.P.P.Jain	Shweta Faizpurkar	Ku.Ankita Jayswal		
16	Ku.P.Y.Banabakode	Varsha Chainani	Sh.MAyur Mahurkar		
17	Sh.K.R.Katariya	Nikhil Bhokardankar	Sh.Laxmikant Hatewar		
18	Sh.K.K.Upadhyay	Jyotasana Maundekar	Ku.Kiran Sathe		
19	Ku.V.S.Bhusari	Shilpa Bhoyar	Ku.Sonal Pense		
20	Sh.J.R.Ray	Dipali Jagtap	Ku.Snehal Tichkule		
21	Ku.S.M.Sai	Trupti Tidke			
22	Ku.J.R.Hole	Omkar Joshi			
23	Ku.R.M.Kukadkar	Mandar Deshkar			
24	Ku.G.G.Kothekar				
25	Ku.S.B.Chatur				
26	Ku.A.S.Bawankar				
27	Ku.U.I.Nitnaware				
28	Ku.R.S.Chiddarwar				
29	Ku.P.V.Gajbhiye				
30	Ku.P.A.Kathane				
31	Ku.P.S.Hinge				
32	Ku.D.A.Vaidya				
33	Sh.S.Badole				

Dr K S Bhanu
Course Coordinator
Prof and Head ,Dept of Statistics ,
Institute of Science ,Nagpur

LIST OF BOOKS ON R

1. The R Book (2007) Michael J. Crawley; Hardcover; $88.00

2. Introductory Statistics with R (2008) (Statistics and Computing)", Peter Dalgaard; Paperback; $48.36

3. A Handbook of Statistical Analyses Using R (2006), Brian S. Everitt and Torsten Hothorn; Paperback; $47.65

4. Data Manipulation with R (2008) (Use R)", Phil Spector; Paperback; $44.48

5. Data Analysis and Graphics Using R: An Example-based Approach (2008), John Maindonald and John Braun; Hardcover; $68.80

6. Using R for Introductory Statistics (2008), John Verzani; Hardcover; $39.96

7. R Graphics (2005) (Computer Science and Data Analysis)", Paul Murrell; Hardcover; $63.96

8. Statistics: An Introduction using R (2005), Michael J. Crawley; Paperback; $43.97

9. A First Course in Statistical Programming with R (2008), W. John Braun and Duncan J. Murdoch ; Paperback; $45.00

10. Software for Data Analysis: Programming with R (2008), John M. Chambers; Hardcover $58.16

11. R for SAS and SPSS Users (2008) by Robert A. Muenchen; Hardcover $74.95 12. 12. An Introduction to R (2002), W. N. Venables and D. M. Smith; Paperback; $13.57

13. Best R book for existing SPSS/SAS users (and generally good as an intro to R): R for SAS and SPSS Users (2008) Muenchen

14. Best R book for programmers: Software for Data Analysis: Programming with R (2008), John M. Chambers

15. A First Course in Statistical Programming with R (2008) Braun and Murdoch

16. Introduction to R: Dr. Sudha Purohit, Dr. Shailaja Deshmukh, Dr. S.D. Gore   (Narosa Publication)

011-
23389283

महाराष्ट्र शासन
शासकीय विज्ञान संस्था, नागपूर
आर.टी.रोड, सिव्हिल लाईन्स, नागपूर – 440001

दुरध्वनी कमांक – 2561148 / 2565581   फॅक्स कमांक 0712–2565581

कमांक–विसंना / लेखा /८८२/ 2012   दिनांक – ९/ ८/ 2012

प्रति,

१) डॉ. श्रीमती. के. एस. आनू
२) डॉ. श्रीमती. एस. श्री. काळकर
३) डॉ. पी. आर. श्रुनिवाउकर

विषय :- Release of Grant-in-aid to institute of scien.
Nagpur under the ugc scheme of carrier
oriented courses. Req.

संदर्भ :- U.G.C. Letter No. F No. 4-163/2011 (COC)
December 2011

उपरोक्त संदर्भाकीत विषयानुसार कळावयास की

श्री. सन 2011.12 करिता आपणास निधापेठ अनुदान
आयोगाकडून आपला स्वींग कॉलरशी रु-900000/-
(Nine lakh only) प्राप्त झाले आहे. कोणन पत्राची
प्रत जोडली आहे. आपणोने पुढोल कार्यवाहीसाठी
कळविले व कार्यवाहीसाठी सादर.

सहपत्र :- मूळ पत्राची व अनादर्शाची
छायांकीन प्रत.

Director,
Institute of Science
NAGPUR.

Syllabus (30 credits)

Theory: (100 Marks) (20 Credits)

Unit 1: (45 Periods) (3 credits)

I. Overview of the R language, Defining the R project, Obtaining R,
   Where to get help, Using the R console, A sample R session

II.Generating R code, Basic programming concepts, Scripts, Text editors for R,
   Graphical User Interfaces (GUIs) for R, Packages

III.Objects and data structures, Variable classes (factor, numeric, logical, complex, missing), Vectors and matrices, Data frames and lists, Data sets included in R , packages, Summarizing and exploring data

IV Dealing with data: Reading data from external files, Storing data to external files,
   Creating and storing R workspaces, Basic exploratory graphics

Unit 2 (30 Periods) (2 credits)

V. Manipulating objects, Mathematical operations, Basic matrix computation, Textual operations, Searches, strings, and pattern matching, Regular sequences , Random sequences, Sampling from distributions

Unit 3: (60 periods) (4 credits)

VI. Graphics – Part-1

Extracting data, Basic plots, Adding overlaid lines, text, etc., Graphical parameters,
Data exploration, Summary graphics

VII. Graphics-Part- 2

Basic graphical troubleshooting, Brief introduction to regression graphics, Generating data
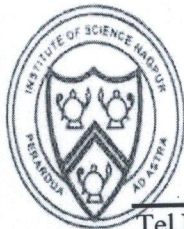

Unit 4: (105Periods) (7 credits)

VIII. Programming (intermediate): Functions, Control structures, Debugging

IX. Probability Distributions, R as a set of statistical tables, Hypothesis testing and data handling, Test for Normality, t-tests, F-test, other Non-parametric tests, ANOVA, Sorting/rearranging data structures

Unit 5 : (60 Periods) (4 credits)

X. Linear & logistic regression, General modeling syntax, Graphics for regression, Tabular displays , Extracting model results, Confidence intervals, Regression diagnostics

Final Project: (50 Marks)(10 Credits)

The final project will have to be submitted within 15 days after the end of the course. The project should include hard and soft copy of data collected along with   R-programs developed or used. Students will use R skills learned during the course (through successful completion of homework assignments) to perform a comprehensive analysis of a data set collected. The project is expected to include exploratory analysis and graphical presentation of results.

UGC Sponsored Certificate course in Statistical Package R

Our institute received a grant of Rs.27,00,000/- for starting three career oriented courses during the XII plan out of which the Department of Statistics was granted 9,00,000/- as seed money for conducting "**Certificate Course in Statistical Package R** " for a period of five years. The courses were conducted during the sessions 2012-13, 2013-14, 2014-15, 2015-16 and 2016-17.
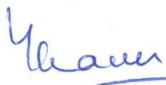
The course got a good response from interested PG students and some UG students. More than 100 students were benefitted by this add-on course. After completion of the course, an examination was conducted and certificates duly signed by the Director, Institute of Science , Nagpur and Director, BCUD, RTM Nagpur University were distributed to the students.

Apart from the usual teaching, two workshops were also conducted for the benefit of the enrolled students, namely

1. Statistical analysis using R - 5th -11th February 2013.

2. Applied Statistics using R - 8th- 10th October 2015.

3. Data Analysis using R – 25th February 2017.

Expert faculties were also invited to guide the students from time to time.

Overall, the course was a success which benefitted the students immensely

Dr.K.S.Bhanu

(Course coordinator)

Prof. & Head

Dept of Statistics

Institute of Science, Nagpur

Ravindranath Tagore Road, Near Maharaj Bag, Nagpur 440 001

Ref : 359

Date 19 -03-2012

To
Director
B C U D
RTM Nagpur University
Nagpur

Sub: Approval of the syllabi of Carrier Orientation courses

Ref: - Letter from Under-secretary, UGC New Delhi, Letter No F 163/2011 (COC) dated 03/01/2012

Sir,

We are happy to inform you that the proposals for the carrier orientation courses submitted by our institute have been accepted by the UGC. The total amount of sanctioned grant for three courses is Rs 3000000/-as per the referred letter.
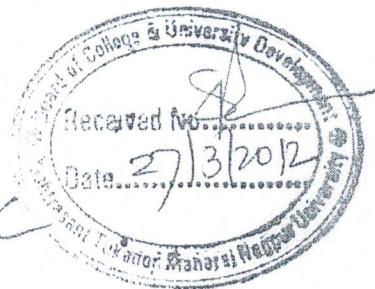
The courses will be inducted from next session 2012-13 in our Institute. Hence for the approval, the syllabi of all the three courses are enclosed along with this letter.

The list of the sanctioned courses is as follows-

1. Certificate course in Medical Electronic Technician
2. Certificate course in Statistical Package R and
3. Certificate course in Plant Biotechnology

Kindle approve the syllabi and inform us accordingly at your earliest.

Thank you.

Yours faithfully

Dr M T. Bharambe

Director
Institute of Science, Nagpur

RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY

Established by Government of Central Provinces Education Department by No. Notification No.513
dated the 1st of August 1923 & presently a State University governed by M.U. Act 1994

BOARD OF COLLEGE AND UNIVERSITY DEVELOPMENT

Mahatma Jyotiba Fule Education Campus, Amravati Road, Nagpur-440 033 (INDIA)

Dr. A. D. Choudhary
Director   Tel No. office-2042962   Fax No.0712 2500736   Resi.2520335

No. BCUD/P/2013/ **802**
Date: 8th April, 2013.
~~23~~
0/1372

To

The Director,
Institute of Science
Ravindranath Tagore Marg,
Civil Lines, Nagpur-440001

Subject: Syllabus and Scheme of examination for conducting Certificate Course
  under UGC Sponsored Career Oriented Programme.

Sir,

   With reference to the above cited subject, It is to inform you that syllabi of
UGC Career Oriented Programmes Certificate Course in Statistical Package R
submitted by you, have been approved by Board of Study.

   Please take necessary action to implement the COP "Certificate Course in
Statistical Package R".

   Thanking you,

                                                            Yours faithfully,

                                                            (A. D. Choudhary)
                                                            Director