UNIVERSITY OF LOUISVILLE

CERTIFICATE PRE-PROPOSAL FORM

Certificate in Biostatistics (CBST)
Title of Certificate

School of Public Health and Information Sciences
Unit Submitting Proposal

Bioinformatics and Biostatistics
Department

__Biostatistics_____
Academic Major

__**Fall 2018**_____
Proposed Starting Date

Karunarathna Kulasekera
Certificate Program Coordinator

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Approved:

Letter of Intent:	Date: __05/18/2017_____
Faculty Senate	Date: _____
Board of Trustees	Date: _____
Council on Postsecondary Education (CPE)	Date: _____
Other (if applicable)	Date: _____

NOTE: COUNCIL ON POSTSECONDARY EDUCATION (CPE) APPROVAL IS REQUIRED:

- **IF THE CERTIFICATE PROPOSAL IS 18 OR MORE GRADUATE CREDIT HOURS**
- **IF THE CERTIFICATE PROPOSAL IS 24 OR MORE UNDERGRADUATE CREDIT HOURS**

FOR MORE INFORMATION: http://louisville.edu/oapa/academic-program-approval-process-new-proposals

Institution: University of Louisville

Program Name

Certificate in Biostatistics (CBST)

Degree Level *(Select)*

Undergraduate:	*Graduate (select one of the following):*
Pre-Baccalaureate _____	Post-Baccalaureate ___X_ Post-Master's _____ Post-Professional _____

Classification of Instructional Program (CIP) Code *(Provost Office Use Only)*

(CIP) Area of Study *(Provost Office Use Only)*

Proposed Implementation Date: *(Semester and Year)*

Fall 2018

Institutional Contact Information

Name: Karunarathna Kulasekera
(First and Last Name)

Title: Department Chair and Professor

Email: kb.kulasekera@louisville.edu
Work Phone: (502) 852 6422

2a. Provide a Brief Description of the Program.

This is a 15 semester hour certificate to deliver core biostatistics instruction to a wide spectrum of industrial workforce. Students in numerous disciplines seek to enhance their data analytic and decision making skills. Following this program would be an ideal path towards accomplishing those goals. In addition, individuals who are interested in the possibility of entering the MS program in Biostatistics and want to learn more about the area before applying and/or need to demonstrate ability to complete a degree program can use this as a stepping stone.

2b. What are the objectives of the proposed program?

1. To provide core biostatistics training to industrial workforce; in particular, for individuals engaged in data based decision making
2. To provide core biostatistics training for students in multiple disciplines who anticipate career paths involving biostatistical applications

3. To train professionals who will advocate for the design and application of statistical methods and appropriate interpretation of results in his or her field to optimize decision making
4. To provide a foundation for students who may be interested in pursuing graduate degrees in biostatistics

2c. Explain how the objectives support the institutional mission and strategic priorities, the statewide postsecondary education strategic agenda, and the statewide strategic implementation plan.

The University of Louisville shall be a premier, nationally recognized metropolitan research university with a commitment to the liberal arts and sciences and to the intellectual, cultural, and economic development of our diverse communities and citizens through the pursuit of excellence in five interrelated strategic areas:

1. *Educational Experience*
2. *Research, Creative, and Scholarly Activity*
3. *Accessibility, Diversity, Equity, and Communication*
4. *Partnerships and Collaborations*
5. *Institutional Effectiveness of Programs and Services.*

Providing continuing education and training programs for professionals in the industrial sector of the metro and adjacent communities is an essential feature of the university's aspiration to become a premier metropolitan university. This certificate program will provide valuable graduate level educational experience that will be instrumental to improving the decision-making abilities of the workforce. Such workforces are essential to advancing the economic status of communities and hence the entire state and the nation. This is completely in alliance with the mission of the university, statewide educational strategies and agenda.

Furthermore, as evidenced by nationwide employment statistics, employment prospects and rates, compensation and demand for individuals with strong quantitative sciences backgrounds are much higher than graduates with minimal exposure to these areas. In addition, this certificate program will provide an avenue to enter an MS program in biostatistics to students whom, for various reasons, earned lower than desired grades in their undergraduate program, thus giving a second chance which otherwise might not be available. Hence, this program would help enrollment enhancements sought by the university as well as higher job placement rates of graduates; a vital component of the university's 2020 plan.

2d. Is there an approval letter from Education Professional Standards Board (EPSB) ? *(Education Proposals Only)*

_____Yes **__X___No**

If yes, please attach to the proposal.

3. Clearly state the admission, retention, and completion standards designed to encourage high quality. List Admission requirements and also provide projected enrollment and graduates for a five-year period.

For admission to the CBST, the following would be required:

• Bachelor's degree or its equivalent in basic sciences, economics, psychology or in a closely related discipline from an accredited institution. The curriculum must contain a statistics or biostatistics course at sophomore level or higher and at least two courses in basic sciences.

• Preferred minimum GPA is 2.75 on a 4.0 scale. Applicants with lower GPAs will be considered on a case by case basis.

• Proficiency in English language is a requirement and a key to the success in the program.

Applicants will use the UofL SIGS application process to apply to the CBST.

A. Indicate the expected Faculty to Student Ratio: 1/6

B. Projected Enrollment and Graduation Numbers for the First Five Years

Academic Year	Degrees Conferred	Headcount Enrollment (Fall term)
2018-2019	5	10
2019-2020	10	15
2020-2021	10	15
2021-2022	15	20
2022-2023	20	25

C. Complete the Faculty Roster and attach to the Certificate proposal. The roster form is located at : http://louisville.edu/oapa/academic-program-approval-process-new-proposals

4. Provide the program curriculum and any options; indicate total number of credit hours required for degree completion. Complete curriculum table.

Curriculum Table

Prefix & Number	Course Title	Course Description	Credits	New	Current	Revised
PHST-680	Biostatistical Methods I	A mathematically sophisticated presentation of principles and methods of: exploratory data analysis; statistical graphics; point estimation; interval estimation; hypothesis testing of means, proportions and counts; chi square analysis; rate ratio; and Mantel-Haensel analysis. Matrix algebra is required. Data sets will be analyzed using statistical computer packages; examples will be drawn from the biomedical and public health literature. Emphasis will be placed on methods and models most useful in clinical research.	3		X	

PHST-681	Biostatistical Methods II	A mathematically sophisticated introduction to: general linear models; regression; correlation; analysis of covariance; one and two-way analysis of variance; and multiple comparisons. Matrix algebra is required. Data sets will be analyzed using statistical computer packages; examples will be drawn from the biomedical and public health literature. Emphasis will be placed on methods and models most useful in clinical research.	3		X		
PHST-620	Introduction to Statistical Computing (SAS)	This course addresses fundamentals of statistical computing with special emphasis on software tools employed most often in biostatistics. This course will develop essential skills associated with the preparation and statistical analysis of research data through the use of statistical software packages, such as SAS, SPSS and other software. Emphasis will be on research data management, implementation and interpretation of basic statistical procedures, and documentation of coding and other work.	3		X		

PHST-640	Statistical Methods for Research Design in Health Sciences	Statistical methods for clinical research and interpretation of the literature. Course includes basic features of design and analysis of clinical research studies looking at cause and effect relationships, surveys, case control studies, cohort studies, and randomized controlled trials. Topics include sampling, sample size calculations, matching, confounding, and methods for analysis of simple and complex studies.	3		X	
PHST-684	Categorical Data Analysis	Focuses on statistical methods for analyzing survival data, including both parametric and nonparametric methods. Topics include life-table analysis, proportional hazard models, log-rank tests, parametric survival distributions, graphical methods, and goodness- of -fit tests. Emphasis will be placed on methods and models most useful in clinical research.	3		X	

5. Describe the library resources available to support this program. Provide a letter from the appropriate University Library verifying available resources.

Library resources to support this certificate already exist to the extent they exist for the MS and PhD in Biostatistics. No additional library resources are needed.

6a. What are the intended learning outcomes of the proposed program?

The competencies (learning outcomes) for the CPHS are:

1. Organize, clean and manage research data and use standard software for analyses of different types of data

2. Describe basic concepts of probability, random variation and commonly used statistical probability distributions

3. Apply descriptive techniques commonly used to summarize data

4. Design research experiments and implement data collection mechanisms and conduct analyses using standard inferential techniques

5. Analyze moderately complex research data using appropriate statistical methods such as linear regression, ANOVA, logistic regression, and contingency tables and correctly interpret the results

6. Interpret and critique results of statistical analyses in various studies in the literature

7. Develop written and oral presentations based on statistical analyses for both professionals in various disciplines and educated lay audiences

6b. Identify both the direct and indirect methods by which the intended student learning outcomes will be assessed.

Each course has mechanisms for assessing attainment of competencies for the individual course. These include examinations and written and oral assignments. Mini projects and written assignments in courses taken towards the latter part of the program will assess choice of statistical techniques, correctness of their application, and appropriate interpretation of results.

7a. Will this be a 100% distance learning program? *(Select One)*

____Yes **__X__No**

7b. Will this program utilize alternative learning formats (e.g. distance learning, technology-enhanced instruction, evening/weekend classes, accelerated courses) *(Please select all that apply)*

__X____Distance Learning
__X____ Courses that combine various modes of interaction, such as face to face, videoconferencing, audio-conferencing, mail, telephone, fax, email, interactive television or World Wide Web**.**
__X____Technology-enhanced instruction
__X____Evening/weekend/early morning classes
_____Accelerated Courses
_____ Instruction at nontraditional locations, such as employer worksite
_____ Courses with multiple entry, exit and reentry points
_____ Courses with "rolling" entrance and completion times, based on self-pacing
_____ Modularized courses

8a. Provide justification and evidence to support the need and demand for this proposed program. Include any data or student demand; career opportunities at the regional,

state, and national levels; and any changes or trends in the discipline(s) that necessitate a new program.

More than 15 departments/programs of biostatistics in the nation offer a certificate in biostatistics with a variety of flavors. Among these schools are: University of Kentucky, Kansas University, West Virginia University, University of Minnesota, Georgetown University, University of Washington and University of South Florida.
The geographically closest offering is the program at the University of Kentucky. The program at the University of Kentucky started in 2015 with a current face-to-face enrollment of 10. The curriculum is slanted towards epidemiological and genetics applications. For example, 33% the courses available for the 9 hours of electives are strictly in epidemiology and genetics and 33% are strictly in public health emphasized methods. These restrictions might have a narrowing effect on the field of applicants, in particular applicants who are employed in industries such as insurance and engineering related sciences. The proposed certificate has a general biostatistics curriculum that can accommodate interests of a much broader spectrum of applicants.

There is a very high demand for biostatistical training in many industrial sectors, especially for insurance, pharmaceuticals and chemical industries. For example, Bureau of Labor Statistics job growth data show there is a 34% predicted increase in the need of statisticians in the labor market for the 2014-2024 period (https://www.bls.gov/ooh/). Another study by McKinsey Global Institute predicts that the United States will need in excess of 150,000 professionals with expertise in statistical methods by 2018 (www.mckinsey.com).
Due to these demands, certificate programs in biostatistics have been successful in many biostatistics programs and there is no reason to believe it will not be at UofL. It is noteworthy that certificate in biostatistics is not offered in Southern Ohio, Western Tennessee, Southern Illinois, Indiana and Western North Carolina, creating a fertile environment for recruiting students for this program. Following are some examples of tuition costs for biostatistics certificates at other Council on Education for Public Health (CEPH) accredited schools:

School	Hours	Tuition (Resident)
Kentucky	15	$9832
Kansas	15	$9418
South Florida	15	$13,157
Minnesota	16	$15,000
West Virginia	15	$10,695

Although the program is offered in-class at the onset, a fully online version will be available in approximately five years. This would make the program reachable by a wide spectrum of candidates seeking to hone their analytical skills. Faculty within the department have

embraced this challenge and they view this as an opportunity for growth rather than a hindrance. The department has developed a very close relationship with the Delphi Center in this endeavor and several faculty members, including the chair/program director, have volunteered to go through the training program in online course/program development conducted by Delphi Center. Three members already have developed a few online modules for courses that are used in the MPH program. Some of these are common for the certificate as well as the MS program in biostatistics. Hence we envision that making this a fully online version is, while challenging, highly feasible.

8b. Specify any distinctive qualities of the proposed program.

The most distinctive quality of this certificate is the potential to increase quantitative skills for those in the general industrial workforce. In particular, employees in pharmaceutical, healthcare/insurance, biological, and chemical industries who are interested in enhancing their decision analytic skills consistently seek training from programs of this nature. Communications with higher level managers in these industries indicate the acute shortage of individuals with general statistical background and the high desire to employ people who can directly contribute to companies in data analytic related issues**.** According to existing data given in the Occupational Outlook Handbook published by the Bureau of Labor Statistics, the number of jobs for statisticians is expected to steadily increase (see 8a above). Hence, contributions from certificate programs of this nature to train this future workforce will be highly valuable**.**

8c. Does the proposed program serve a different student population (e.g. students in a different geographic area, non-traditional students, etc.) from existing programs? *(Select One)*

____X___**Yes** _____**No**

If yes, please explain:

Once the program is available online, it will accommodate populations that are otherwise completely unreached by a traditional on-campus program. In the interim, in addition to regular Uof L students, students who have other work commitments that would make it difficult to come to campus to take these courses on a regular basis and students from different geographic areas (primarily in the seven state region bordering Kentucky) can be accommodated. It will also serve professional and graduate students from the other areas such as Medicine, Nursing, Dentistry, Engineering, Psychology, Social Sciences and Natural Sciences who desire to have a certificate in biostatistics along with their primary degree.

9a. How will the program support or be supported by other programs within the institution?

_____X_____**Yes** _____**No**

If yes, please explain:

Within the School of Public Health and Information Sciences, the CBST will support the MS program in biostatistics by providing a way for students to enter that might not have done so without this option. The CBST will benefit by the offering of courses that are included in the MS in biostatistics.

Programs in the other areas (Medicine, Nursing, Dentistry, Engineering, Psychology, Social Sciences and Natural Sciences) will be supported through development of skills and knowledge that are not covered in their respective curricula.

9b. Will this program replace or enhance any existing program(s) or track(s), concentration(s), or specialization(s) within an existing program?

____x_____Yes **_____No**

If yes, please explain:

This certificate will help increase enrollments in our existing MS degree program in Biostatistics since all hours contained in the certificate can count towards the MS. Furthermore, as mentioned above, this certificate program will provide an avenue to enter an MS program in biostatistics to students whom, for various reasons, earned lower than desired grades in their undergraduate program, thus giving a second chance which otherwise might not be available.

10. Relationship with programs at other institutions *(if applicable)*

There is no direct relationship with programs at other institutions. Professional societies and associations discuss success and recalibration of programs of this nature in their meetings under the "statistics education" umbrella.

11. Faculty Resources: If additional faculty *(including graduate assistants)* **will be required within the next five years, indicate the number and role of each new faculty member.**

All courses are being offered in the current MS in biostatistics curriculum. An internal reallocation of faculty workload as described in the budget proposal will cover the primary instructional needs of the certificate program.

12. Preliminary resource estimates - The resource requirements and planned sources of funding of the proposed program must be detailed in order to insure the adequacy of the resources to support a quality program.

12a. Will this program require additional resources?

_____**Yes** ___X____**No** *If yes, provide a brief summary of additional resources that will be needed to implement this program over the next five years.*
12b. Will this program impact existing programs and/or organizational units?
_____X_____**Yes** _____**No** ***If yes, please describe the impact on existing programs, will resources be allocated*** *(i.e. reassign faculty or staff, change course offerings, reduction in students served?)* The CBST will impact existing programs within and outside the SPHIS through enrollment of their students in the CBST. No additional resources will be needed to influence this impact. However, students in these programs will pay SPHIS tuition to be enrolled in courses.
12c. Complete program proposal budget form located at: http://louisville.edu/oapa/academic-program-approval-process-new-proposals

Note: Financial Aid for Certificate Programs

Students enrolled in stand-alone certificate program are not eligible for federal financial aid. The university elected on 6.30.2012 to opt out of participation with the Department of Education (DOE). To qualify for federal aid, the law requires that most for-profit programs and certificate programs at nonprofit and public institutions prepare students for gainful employment in a recognized occupation. UofL students must be enrolled in a degree granting program in conjunction with the certificate program to receive federal aid.

Cost/Funding Explanation

Complete the following table for the first five years of the proposed program and provide an explanation of how the institution will sustain fundin
total funding and expenses in the table should be the same, or explain sources(s) of additional funding for the proposed program.

A. **Funding Sources, by year of program:**	**2018-19**	**2019-20**	**2020-21**	**2021-22**
Total Resources Available from Federal Sources				
~ New	$ -	$ -	$ -	$ -
~ Existing				
Narrative Explanation/Justification:				

Funding Sources, by year of program *(continued)*	***2018-19***	***2019-20***	***2020-21***	***2021-22***
Total Resources Available from Other Non-State				
~ New	-	-	-	-
~ Existing				
Narrative Explanation/Justification:				

Funding Sources, by year of program *(continued)*	***2018-19***	***2019-20***	***2020-21***	***2021-22***

Cost/Funding Explanation

State Resources				
~ New	$ -	$ -	$ -	$ -
~ Existing				

Narrative Explanation/Justification:

Funding Sources, by year of program *(continued)*	***2018-19***	***2019-20***	***2020-21***	***2021-22***
Internal Allocation				
Internal Reallocation	$ 209,698.00	$ 213,891.96	$ 218,169.80	$ 222,533.19

Narrative Explanation/Justification: *The sources and process of allocation and reallocation should be detailed, includi of the impact of the reduction on existing programs and/or organization units.*

All program expenses are already being incurred by the department.

Funding Sources, by year of program *(continued)*	***2018-19***	***2019-20***	***2020-21***	***2021-22***

Cost/Funding Explanation

Student Tuition				
~ New	$ 102,150.00	$ 160,886.25	$ 168,930.56	$ 236,502.79
~ Existing				

Narrative Explanation/Justification: *Describe the impact of this program on enrollment, tuition, and fees.*

Tuition is calculated at $10,215 per student, which is eqaul to 15 hours of graduate resident credits, in year one, with a five increase in each subsequent year. Enrollment is projected to be ten in year one, 15 in years two and three, 20 in year four a five.

		2018-19	2019-20	2020-21	2021-22
A.	**TOTAL - Funding Sources** (**REVENUES**)	$ 311,848.00	$ 374,778.21	$ 387,100.37	$ 459,035.98

Cost/Funding Explanation

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Cost/Funding Explanation

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Cost/Funding Explanation

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2022-23
$ 537,393.77

Cost/Funding Explanation

Complete the following table for the first five years of the proposed program and provide an explanation of how the institution will sustain funding nee
funding and expenses in the table should be the same, or explain sources(s) of additional funding for the proposed program.

B.	Breakdown of Budget Expenses/Requirements	2018-19	2019-20	2020-21	2021-22
	Staff				
	Executive, Administrative, Managerial				
	~ New	$ -	$ -	$ -	$ -
	~ Existing: K.B. Kulasekera-Program Director (10%)	$ 28,053.00	$ 28,614.06	$ 29,186.34	$ 29,770.07
	Other Professional				
	~ New	$ -	$ -	$ -	$ -
	~ Existing: Administrative Assistant (20%)	$ 9,403.00	$ 9,591.06	$ 9,782.88	$ 9,978.54
	Faculty				
	~ New	$ -	$ -	$ -	$ -
	~ Existing: (see below)	$ 172,242.00	$ 175,686.84	$ 179,200.58	$ 182,784.58
	Jack Barnette (10%)	$ 26,790.00	$ 27,325.80	$ 27,872.32	$ 28,429.76
	Jeremy Gaskins (15%)	$ 19,511.00	$ 19,901.22	$ 20,299.24	$ 20,705.23
	Bakeerathan Gunaratnam (15%)	$ 12,188.00	$ 12,431.76	$ 12,680.40	$ 12,934.00
	Maiying Kong (10%)	$ 14,090.00	$ 14,371.80	$ 14,659.24	$ 14,952.42
	Doug Lorenz (15%)	$ 19,550.00	$ 19,941.00	$ 20,339.82	$ 20,746.62
	Riten Mitra (10%)	$ 12,995.00	$ 13,254.90	$ 13,520.00	$ 13,790.40
	Subhadip Pal (10%)	$ 12,875.00	$ 13,132.50	$ 13,395.15	$ 13,663.05
	Rebekah Robinson (75%)	$ 26,790.00	$ 27,325.80	$ 27,872.32	$ 28,429.76
	Dongfeng Wu (10%)	$ 14,448.00	$ 14,736.96	$ 15,031.70	$ 15,332.33
	Qi Zheng (10%)	$ 13,005.00	$ 13,265.10	$ 13,530.40	$ 13,801.01
		$ -	$ -	$ -	$ -
	Graduate Assistants				
	~ New	$ -	$ -	$ -	$ -
	~ Existing	$ -	$ -	$ -	$ -
	Student Employees				
	~ New	$ -	$ -	$ -	$ -
	~ Existing	$ -	$ -	$ -	$ -

Cost/Funding Explanation

Narrative Explanation/Justification: *Includes salaries or all listed above. Identify the number of new faculty required and whether the new hi time or full-time. Identify the number of assistantships/stipends that will be provided. Include the level of support for each assistantship/stipend.*

Program director will take the primary administrative role in the program. Admissions committee (Drs. Kulasekera, Lorenz and handle all admission/advising procedures. Faculty noted above will be involved in teaching and co-teaching courses in the prog Administrative Assistant will manage all documentation and communincation. All courses listed in the certificate are already re offered. The effort levels listed for above faculty are based on those for course offerings and advising for students in the existin program. We do not anticipate a significant extra burden for faculty. However, it is difficult to state the exact percentage effort member since not every person is going to be teaching these courses every year. What we have provided is the worst-case expe scenario. The program director and the administrative assistant are both involved with the MS program administration at above We do not anticipate significant increases in administrative workloads. Our goal is to have all certificate courses developed in a mode and tested before rolling out the certificate as a fully online program. This, we estimate, would be about a five-year proje

Breakdown of Budget Expenses/Requirements *(continued)*	***2018-19***	***2019-20***	***2020-21***	***2021-22***
Equipment and Instructional Materials				
~ New	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:				

Cost/Funding Explanation

Breakdown of Budget Expenses/Requirements *(continued)*	*2018-19*	*2019-20*	*2020-21*	*2021-22*
Library				
~ New	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:				

Breakdown of Budget Expenses/Requirements *(continued)*	*2018-19*	*2019-20*	*2020-21*	*2021-22*
Contractual Services				
~ New	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:				

Cost/Funding Explanation

Funding Sources, by year of program *(continued)*	2018-19	2019-20	2020-21	2021-22
Academic and/or Student Support Services				
~ New	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:				

Breakdown of Budget Expenses/Requirements *(continued)*	2018-19	2019-20	2020-21	2021-22
Other Support Services				
~ New	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:				

Cost/Funding Explanation

Funding Sources, by year of program *(continued)*	*2018-19*	*2019-20*	*2020-21*	*2021-22*
Faculty Development				
~ New	-	-	-	-
~ Existing	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:				

Breakdown of Budget Expenses/Requirements *(continued)*	*2018-19*	*2019-20*	*2020-21*	*2021-22*
Assessment				
~ New	$ -	$ -	$ -	$ -
~ Existing	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:				

Cost/Funding Explanation

Funding Sources, by year of program *(continued)*	2018-19	2019-20	2020-21	2021-22
Other				
~ New	-	-	-	-
~ Existing	$ -	$ -	$ -	$ -
Narrative Explanation/Justification:				

B. TOTAL - Expenses/Requirements (EXPENDITURES)	2018-19	2019-20	2020-21	2021-22
	$ 209,698.00	$ 213,891.96	$ 218,169.80	$ 222,533.19

Cost/Funding Explanation

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2022-23
$ -
$ 30,365.47
$ -
$ 10,178.11
$ -
$ 186,440.28
$ 28,998.36
$ 21,119.33
$ 13,192.68
$ 15,251.47
$ 21,161.55
$ 14,066.21
$ 13,936.31
$ 28,998.36
$ 15,638.98
$ 14,077.03
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Cost/Funding Explanation

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Cost/Funding Explanation

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Cost/Funding Explanation

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Cost/Funding Explanation

2022-23
-
$ -

2022-23
$ 226,983.86

		1st Year	2nd Year	3rd Year	4th Year	5th Year
A.	TOTAL - Funding Sources (REVENUES)	$ 311,848.00	$ 374,778.21	$ 387,100.37	$ 459,035.98	$ 537,393.77
B.	TOTAL - Expenses/Requirements (EXPENDITURES)	1st Year	2nd Year	3rd Year	4th Year	5th Year
		(209,698.00)	(213,891.96)	(218,169.80)	(222,533.19)	(226,983.86)
	BALANCE - (**SURPLUS/DEFICIT**)	$102,150.00	$160,886.25	$168,930.56	$236,502.79	$310,409.91

Faculty Roster Form
Qualifications of Full-Time and Part-Time Faculty

Name of Institution: University of Louisville

Name of Primary Department, Academic Program, or Discipline: Bioinformatics and Biostatistics

Academic Term(s) Included: **Date Form Completed: 9/17/2017**

1	2	3	4
NAME (F, P)	**COURSES TAUGHT Including Term, Course Number & Title, Credit Hours**	**ACADEMIC DEGREES & COURSEWORK Relevant to Courses Taught, Including Institution & Major List specific graduate coursework, if needed**	**OTHER QUALIFICATIONS & COMMENTS Related to Courses Taught**
K.B. Kulasekera, F	PHST-781 (Fall 2014, 15), Advanced Linear Models, 3 hours PHST-780 (Spring 2013), Advanced Nonparametrics, 3 hours	PhD, 1988, University of Nebraska, Mathematical Statistics, Probability, Nonparametric Statistics, Linear Models; Reliability	Taught a variety of MS and PhD level statistics courses at the University of Louisville and Clemson University
J. Jackson Barnette, F	PHST-631 (Fall 2016, new), Data Collection for Clinical Research, 2 hrs. PHST-645 (Spring 2016), Health Sciences Instrumentation, 3 hrs. PHPH-699 (all semesters), Mentored Research, 3 hrs.	PhD, 1972, The Ohio State University, Educational Research and Development, Psychometrics, Program Evaluation	Teaching this topic in Public Health Summer Program, The Ohio State University
Jeremy Gaskins, F	PHUN-301 (Fall 2014), Biostatistics Concepts and Methods for Public Health, 3 hours PHST-691 (Spring 2015, '16), Bayesian Statistics, 3 hours PHST-675 (Fall 2015), Independent Study in Biostatistics, 3 hours PHST-602 (Fall 2015, Spring 2016), Biostatistics Decision Science Seminar, 1 hour	PhD, 2013, University of Florida, Statistics	

Bakeerathan Gunaratnam, F	PHST-620 (Fall 2014 & Spring 2016), Introduction to Statistical Computing, 3 hours PHST-640 (Spring 2016), Statistical Methods for Research Design in Health Studies, 3 hours PHST-625 (Spring 2014, 2015 & 2016), Clinical Trials II, 2 hours PHST-624 (Fall 2014, 2015 & 2016), Clinical Trials I, 2 hours PHST-626 (Fall 2014 & 2015), Clinical Trials Statistics Laboratory, 1 hour PHST-681 (Spring 2015), Biostatistical Methods II, 3 hours PHST-751 (Spring 2014 & 2015), High Throughput Data Analysis, 3 hours PHST-711 (Summer 2014), Advanced Statistical Computing II, 3 hours OBIO-501 (Fall 2015, 2015 & 2016), Biomedical Data Analysis and Experimental Design, 3 hours	PhD, 2013, Case Western Reserve University, Basic Statistics for Social and Life Sciences	Teaching biostatistics at the dental school, UofL.

Maiying Kong, F	PHST-710 (Fall 2014, 2015, 2016), Advanced Statistical Computing, 3 hours PHST-751 (Spring 2015), HTP Data Analysis, 3 hours, new PHST-781 (Fall 2009-2016), Advanced Linear Models, 3 hours PHST-782 (Fall 2014 & 2016), Generalized Linear Models, 3 hours PHST-650 (Fall 2016), Intermediate Biostatistics for Health Science, 3 hours	PhD, 2004, Indiana University Bloomington, Statistics, Probability, Linear Models, Nonparametric Statistics, response surface modeling	My research is related to those techniques taught in these courses.
Doug Lorenz, F	PHST-500 (2013-2016, Fall), Introduction to Biostatistics and Data Management for Health Sciences I, 3 hours PHST-501 (2014-2016, Fall), Introduction to Biostatistics and Data Management for Health Sciences II, 3 hours PHPH-697 (all semesters), Public Health Practicum, 1 hour PHST-603 (Spring 2016), Biostatistics Practicum, 2 hours PHST-666 (Spring 2016), Master's Thesis Research, 6 hours	PhD, 2011, University of Louisville, Mathematical probability and statistics, Applied linear statistical models, Survival analysis, Nonparametric statistics, Categorical data analysis, Methods of classification	Have taught several courses for the MS and PhD in Biostatistics as well as the Master of Public Health (MPH)
Riten Mitra, F	PHST-752 (Fall 2013, Fall 2015), Statistical Genetics, 3 hours PHST-783 (Spring 2014, Spring 2016), Advanced Survival Analysis, 3 hours	PhD, 2010, University of North Carolina at Chapel Hill Bioinformatics, Bayesian Inference, Genetic Epidemiology, Linear Models	Was a Teaching Assistant for Introductory Statistics and Categorical Data Analysis at UNC Chapel Hill

Subhadip Pal, F	PHST 781 (Spring 2017), Advanced Nonparametric Statistics, 3 hours	PhD, 2015, University of Florida, Linear Models , Statistical Inference, Probability, Nonparametric Statistics, Covariance Estimation, Markov Chain Monte Carlo	Course Instructor for Engineering Statistics (STA 3032) at University of Florida. Lab Instructor for Introductory Statistics (STA 2023) at University of Florida. Teaching Assistant for several Statistics courses at University of Florida.
S.N. Rai, F	PHST-680 (2014-Fall, 2015-Fall), Biostatistics Methods I, 3 hours PHST-724 (2008-Spring, 2009-Spring, 2013-Spring, 2015-Spring), Advance Clinical Trials, 3 hours PHST-783 (2010-Spring), Advance Survival Methods, 3 hours PHST-640 (2012-Spring), Statistical Methods for Research Design in Health Studies, 3 hours	PhD, 1993, University of Waterloo, Canada, Biostatistics	Taught a variety of MS and PhD level statistics courses at the University of Louisville, University of Memphis, TN, University of British Columbia, Kelowna, Canada, RA University, Bihar, India
Rebekah Robinson, P	PHST-680 (Fall 2016, 17), Biostatistical Methods I, 3 hours PHST-681 (Spring 2017), Biostatistical Methods II, 3 hours	PhD, 2012, University of Louisville, Applied and Industrial Mathematics, Statistics, Segmented Regression	

Dongfeng Wu, F	PHST-683 (Fall 2014, 2015), Survival Analysis, 3 hours PHST-680 (Fall 2014, 2015), Biostatistical Method I, 3 hours PHST-724 (Spring 2015), Advanced Clinical Trials, 3 hours PHST-662 (Spring 2015, 2016), Mathematical Statistics, 3 hours PHST-671 (Summer 2014, 2016), Special Topics in Biostatistics-Probability Modeling and Statistical Inference in Cancer Screening, 3 hours PHST-675 (almost all semesters), Independent Study in Biostatistics, 3 hours PHST-679 (all semesters), Public Health Practicum-Field Studies, 3 hours	PhD, 1999, University of California, Santa Barbara, Mathematical Statistics, Bayesian Inference, Wavelet Regression, Statistical Computing	Taught a variety of MS and PhD level statistics/biostatistics courses at the University of Louisville and Mississippi State University
Qi Zheng, F	PHST-752 (Fall 2015), Advanced Statistical Inference, 3 hours PHST-684 (Spring 2016), Categorical Data Analysis, 3 hours	PhD, 2013, Clemson University Mathematical Statistics, Probability, Survival Analysis, Nonparametric Statistics, Stochastic Process	

F, P: Full-time or Part-time;