

## Sabbatical Leave Application Checklist

**Submit electronically to Provost Office**

**\*\*\*The SaLe Committee will not consider incomplete applications\*\*\***

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**Cover Sheet** -- *Includes the following:*

<input checked="" type="checkbox"/> Dates of Proposed Sabbatical	<input checked="" type="checkbox"/> Applicant's Signature
<input checked="" type="checkbox"/> Years of Service/Eligibility Points	<input checked="" type="checkbox"/> Dept. Chair's Signature
	<input checked="" type="checkbox"/> Dean's Signature

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**Curriculum Vitae** -- *Must not be longer than 8 pages.*

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**Narrative** -- *Describe the proposed project using the areas indicated in the application form:*

PLEASE NOTE: Your proposal should be written in clear, correct English that is understandable to an educated layperson.

<input checked="" type="checkbox"/> Summary of Project (maximum 250 words)
<input checked="" type="checkbox"/> Tangible Results of the Project (maximum 300 words)
<input checked="" type="checkbox"/> Description of the Project (maximum 1000 words excluding references)
<input checked="" type="checkbox"/> Projected Work Plan and Timeline (maximum 250 words)
<input checked="" type="checkbox"/> Professional Competencies (maximum 500 words)
<input checked="" type="checkbox"/> Likelihood of completion of project (maximum 200 words)
<input checked="" type="checkbox"/> Description of meritorious service (maximum 800 words)

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**NA Budget** -- *Where appropriate, to detail expenses for equipment, student support, etc. Please use the budget form included as Appendix 1.*

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**NA Letters of support** -- *Where appropriate, to affirm the significance and feasibility of the project.*

For example, letters might be appropriate

- To document the value and nature of a collaboration or of a location, the availability of resources, or the feasibility of the project;
- To document access to a restricted archive or library or the importance of the work to be undertaken.

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Final report(s) of any previous sabbatical leave(s) has/have been filed

**All Required Signatures**

Please see the Sabbatical Leave Policy and form on the Provost's website for further description.

For any questions, please contact the Co-Chairs of the SaLe Committee:

Rachel McMullin [rmcmullin@wcupa.edu](mailto:rmcmullin@wcupa.edu) or Jacqueline Van Schooneveld [jvanschooneveld@wcupa.edu](mailto:jvanschooneveld@wcupa.edu)



West Chester University of Pennsylvania
APPLICATION FOR SABBATICAL LEAVE
Submit electronically to Provost Office

Scott McClintock Mathematics 9/5/2022
Name Department Date

1. Sabbatical Request (Select one): 1 year at 1/2 salary X 1 semester at full salary
1 year at full salary
(28 unused points of service is required for eligibility)

Sabbatical to begin Beginning Fall 2023 and end End of Fall 2023

Eligibility: The general rule of thumb is that you need 7 years of full-time service as a regular (permanent) faculty member for each sabbatical, but, you do not need to wait 7 years between sabbaticals. You cannot, however, apply any earlier than four semesters following the semester in which a previous sabbatical has been taken. To help ensure that you have enough years of service to qualify for a sabbatical, answer the following questions:

- Year and semester you began as a full-time regular (permanent) faculty member in the PaSSHE (Note: policy requires that you have at least five consecutive years of service at WCU) Fall 2007
Give yourself one (1) seniority point for each semester of service 30
Subtract 14 points for each sabbatical you have taken (skip this step if you have never had a sabbatical) 16
Divide the remaining number of seniority points by two (2) to convert semesters to years. 8 The result must be at least 7 (years) in order to qualify for the minimum number (5) of years of service points (see p. 4 of the Sabbatical Leave Policies and Procedures).

Note: You do not have to wait until you have completed 7 years of service to apply; you do, however, need to make sure that you will have completed 7 years of service before you take the sabbatical. Because applications must be submitted at least two semesters (fall leave) or three (spring leave) semesters in advance, you can count those semesters as part of your required years of service.

For those applying for promotion, see the Promotion Policy III.B.8.II.2 and FAQ (Q.3). You are encouraged to speak to your sabbatical activity in your Promotion Application.

Proposal Submission. The Faculty member is responsible for ensuring that Chairperson's and Dean's comments and signatures are obtained on time, and that the completed proposal (PDF) is emailed to the Provost's Office by the published deadline. Incomplete applications or applications received after the published deadlines will not be reviewed by the SaLe Committee.

I certify that the information I have presented is accurate and contains no omission of fact.

Scott McClintock
Applicant's signature

9/14/22
Date

2. Summary of the Project [describe the project and summarize its merit according to the criteria set out in the Sabbatical Policy] (maximum 300 words):

The primary goal of this sabbatical is to survey the relevant research regarding statistical matching, in particular coarsened exact matching. Statistical matching is a technique used to reduce bias in estimated treatment effects while running an observational study. It works by matching units in the treatment group with “statistically comparable” units in the control group. Coarsened exact matching “coarsens” the data (For example by using age groups rather than birth date) before matching to allow for computationally quicker results. Once I have surveyed the recent literature and its relevant recommendations, I will update the methodology that I am currently using in my research partnership with Dr Neil Malhotra, a research neurologist at the University of Pennsylvania.

The secondary goal of this sabbatical is to develop competency in the application of cluster and cloud computing. This goal supports the first as I have found that the neurological datasets I am working with have become increasingly large and are beginning to stretch the capabilities of Ramcloud. Our Department has access to a computer cluster however I currently lack the competency to use it.

Finally, I would like to use this time to teach myself the programming language Python. Python is a relatively new language that has been seeing increased use within the statistical profession.

Collectively these goals are of the highest significance. All three of them are scholarly steps that will undoubtedly enhance my professional growth and disciplinary competence. As will be described later, learning how to use the computer cluster and mastering Python will help adapt my teaching to the modern day demands of the statistical workplace. Lastly, this sabbatical will enable me to better serve within the broader statistical community, by holding workshops for industry partners such as Fulton Financial.

3. Tangible Results of the Project (maximum 300 words):

Tangible results will include:

- \* An updated, streamlined process (likely a set of macros and programs) that can be used by student coauthors to optimally match data. This process will be designed to function on both Ramcloud as well as the computer cluster owned by the Department of Mathematics.
- \* At least eight published papers either describing or utilizing this process.
- \* Certificates of completion for two online courses in Python.
- \* A presentation on Banking with Python that will be presented to one of our recent partners, Fulton Financial in March of 2024.

4. Description of the Project [including scholarly or professional objectives, significance, and description of methodology, activities, and procedures] (maximum 1,000 words excluding references):

In Spring of 2018 I took a sabbatical to focus on my research. During this time, I built a relationship with Dr Neil Malhotra, a neurologist from the University of Pennsylvania. He and I implemented a system whereas he would continuously employ at least one of our graduate students as interns to help with his statistical analyses. In turn, I would supervise the students. This relationship has provided an invaluable ongoing service for Dr Malhotra as well as tremendous research opportunities for both myself and the students. It has, so far, resulted in 51 peer-reviewed papers that I have coauthored with Dr Malhotra and the students.

Despite its success our system is beginning to show some cracks. Recent comments from reviewers have been encouraging us to update our methodology. The yearly rotation of students has left a patchwork approach that, although functional, could still benefit from some cohesion. Most importantly, however, in the Fall of 2021 we began working with a dataset that was too large for Ramcloud to process. Future datasets are expected to be comparably large, so this is an issue that needs to be addressed sooner rather than later.

Because of the reviewers comments, I would like to have the time to dig deeper into the recent literature and methodology regarding matching. Observational techniques, such as matching, are something outside of my graduate coursework and dissertation research. Because of this I have been increasingly “winging it”. During this process I may discover techniques that will allow us to continue using Ramcloud for matching, despite the increasingly large size of our datasets. However, I think that this is unlikely. Instead, I believe that we will need to switch over to something that has greater computational power.

Thankfully, our Department has access to a computer cluster which should be able to easily handle our computational needs. However, I lack the technical proficiency to effectively use this cluster. I reached out to IT, multiple times, for help but they lacked the statistical/software expertise to effectively do so. Similarly, I reached out to software support but they required computational information that I was too ignorant to provide. Ultimately, I realized that if I wanted to use the cluster effectively, I would need to find the time to learn it myself.

Finally, I would like to use this time to teach myself to use the programming language Python. Applied Statistics is a dynamic field and, as the methodology adapts to business demands, so too does the prominent software. Python is something that is now regularly used by industry, particularly jobs that identify with the rising field of data science. For example, I was recently asked by managers at Fulton Bank, to prepare and deliver a talk on the use of Python in Banking – a request that I had to sadly defer, due to my lack of experience. Python is also used in research. For example, a secondary research interest of mine, topological data analysis (TDA) uses Python almost exclusively. Because of this, before I can dig deeply into TDA I will need to first master Python.

I will begin addressing these goals by purchasing and reading the following books:

- Design of Observational studies by Rosenbaum (2020)
- Design and Analysis of Experiments and Observational Studies using R by Taback (2022)

Both of these books are purposefully more general than coarsened exact matching, because I am open-minded to the possibility that there might be better approaches out there of which I am unaware.

Description of the Project (continued):

Using these books, as well as recent reviewer comments, I will then evaluate the current protocol used in our research with UPenn with the goal of streamlining and updating it. Once this has been completed, I will then work to determine how to implement this approach, first on Ramcloud, and then on our cluster. I am not aware of a single book or class to help me in terms of transitioning to the cluster, and I expect that the process will involve dynamic troubleshooting, something that I am confident I can do given the space and time to do so.

In terms of learning Python there are many online courses available. As of now my intention is to enroll in the following two classes which are available via Coursera:

- Applied Data Science with Python
- Statistics with Python

Although this updating process could possibly be deferred for a year or two, I am confident that it needs to be done for my current research trajectory to continue. It should be pointed out, however, that this sabbatical would do much more than allow me to continue my research. The ongoing relationship with the University of Pennsylvania strengthens my professional reputation, as well as that of our Applied Statistics Program. It also provides ongoing research and internship opportunities for our students. The problem of Ramcloud being unable to process large datasets is not something restricted to my current research. It has been an issue with my financial research as well as an ongoing issue in the classroom. As such, being able to wean myself off Ramcloud would open up other research opportunities, as well as allow me to use larger, more realistic datasets within the classroom. In a similar vein, mastering Python would open pedagogical opportunities as well as allow me to bolster my professional reputation by preparing and presenting workshops to local industry partners such as Fulton Financial.

5. Projected Work Plan and Timeline [for all activities and/or procedures identified in #4] (maximum 250 words):

Throughout the semester: Work with Professor Malhotra and student interns to continue publishing papers. Under normal work conditions I publish roughly ten papers a year. With this in mind, the goal would be to do the work for roughly eight eventual publications during this time period. While doing so, I will critically evaluate our methodology for improvement, rather than blindly following what has been done in the past.

Immediately: Enroll in Applied Data Science with Python (time to completion listed as 3-6 months) and Statistics with Python (time to completion listed as 1-3 months). Follow course syllabi.

Weeks 1-4: Read the textbooks Design of Observational Studies and Design and Analysis of Experiments and Observational Studies using R.

Weeks 5-6: Create a list of viable theoretical approaches and determine which, if any, might be an improvement upon our own. Adapt the approach as necessary.

Weeks 7-8: Evaluate, from a computational perspective, the current programs and macros used for matching. Make any necessary changes to accommodate a shift in methodology. Test on old datasets to make sure that the results of our new approach agree with our old. As of now everything is done on Ramcloud.

Weeks 9-11: Move the Ramcloud approach to the Department of Mathematics computer cluster. Test on old datasets to make sure that everything remains in agreeance.

Weeks 12-14: Finish the Python courses. Prepare a presentation for Fulton Financial on the use of Python in Banking.

6. Professional Competencies (maximum 500 words):

[Explain how the project will enhance your professional competencies in relation to your current work assignment and specify the expected benefits for your professional development, the discipline, and the university.]

This proposed project is consistent with my Statement of Expectations which expects me to “continue active research ... measures of success will include but not necessarily be restricted to: publications in refereed statistics ... journals where statistical methods have been developed or applied, either independently or in collaboration with others”. It is similarly consistent with my Departmental Teacher Scholar Model.

#### **PERSONAL PROFESSIONAL DEVELOPMENT**

The sabbatical will allow me to strengthen and continue my current publication regiment. These publications will continue to help me develop professionally. On top of this, being able to perform statistics on a cloud/cluster computer as well as program in Python will have immense benefits both in terms of pedagogy and relating to industry.

#### **EXPECTED BENEFITS TO THE DISCIPLINE**

I am open-minded that, along the way, I might be able to make some methodological contribution to the field of observational studies. However, I suspect that this is unlikely. Instead, I will expertly apply these techniques on data provided by the University of Pennsylvania to continue publishing papers. These are high quality international publications that have immediate impact within the broader medical field. Examples of journals we have published in include World Neurosurgery, Journal of Healthcare Quality, and Neurosurgery.

My learning of Python will benefit the statistical community by allowing me to prepare talks and workshops which will, in turn, strengthen my professional reputation.

#### **EXPECTED BENEFITS TO UNIVERSITY**

All of my current research involves graduate level students. These students get invaluable experience analyzing real life data, which helps them get jobs within industry. It also gives them coauthorship opportunities. A knowledge of Python will enrich my classroom, allowing me to teach code and write examples using cutting edge, in demand software.

Knowing how to use the cluster on my own will mean that I will be able to stop harassing IT, which I am sure they will appreciate 😊





7. Likelihood of completion of project (maximum 200 words):

There is a high likelihood of completion for this project. Although observational methods were not part of my graduate education, I have been able to self-teach enough (thanks to a previous sabbatical!) to have now published more than 50 papers. Ultimately, I am improving and rebuilding something that I have already designed and implemented.

I am confident that that I will be able to learn Python, given the freedom afforded by a sabbatical. I have had good luck with Coursera classes in the past and am a diligent student when given the time to do so.

My goal to temporarily increase my rate of publication is very attainable given our current and sustained track record of publication.

8. Previous sabbatical(s):

<u>Year</u>	<u>Activity</u>
Spring 2018	Begin current research partnership. Published 2 papers, submitted 5 papers.
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

9. Previous AWA(s) for scholarly/creative endeavors:

<u>Year</u>	<u>Activity</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

10. Description of Meritorious Service [identify by year since last sabbatical] (maximum 800 words):

Before my previous sabbatical I served on several Department and University committees. My membership on these committees has since expired although I continue to provide service in an informal capacity. For example, although I no longer formally serve on CAPC I continue to provide substantial CAPC support within the Department. More specifically, over the last five years, I single-handedly gained CAPC approval for STA 203, STA 503, STA 540, STA 543, STA 544, STA 536, STA 545, STA 546, STA 551, STA 552, STA 553 and our new MS Applied Statistics concentration in Data Science. Other services include:

Served as the Interim Coordinator of the MS in Applied Statistics during Fall 2018. I also fill in during open houses whenever Professor Rieger cannot attend them.

Served as the Co-chair to the Statistics faculty search during Fall 2018 and Spring 2019

Served as Interim member of the Personnel Committee in Spring 2019

Served on a number of five-year review committees

Co-hosted the Applied Statistics new student orientation Fall 2018 through Fall 2021

In Fall of 2019 I coordinated with PHILASUG (Philadelphia SAS User's Group) to organize West Chester University's third annual SAS Day. This half day event featured six different speakers and had more than 80 attendees. These attendees included graduate and undergraduate students as well as a variety of working professionals from the statistical community.

Throughout this entire review period I have served as the appointed Education Outreach Coordinator for the Philadelphia Chapter of the American Statistical Association.

11. Attach current curriculum vitae, no longer than 8 pages. Attach letters of support (not required, but encouraged).

12. Endorsements and Comments

a. Peter L. Glidden, Ph.D. (signed)  
Chairperson

09/13/2022  
Date

N.B. If the applicant is the Department Chair, this form must be signed by the Assistant Chair or, if there is no Assistant Chair, a senior tenured member of the Department.

Please comment below on how the sabbatical relates to the individual faculty member's assignment in the department as well as how the sabbatical relates to department goals or long range plans.

Dr. McClintock's proposed sabbatical promises to have a significant positive impact on his research, his students' research, his teaching, and the graduate program in applied statistics. It is important that applied statisticians keep current with research methodology and Dr. McClintock's investigation of coarsened exact matching will do just that. Furthermore, by gaining the expertise in Python, cluster computing, and cloud computing Dr. McClintock will be able to extend his own research, and that of his students, into financial research, which benefits the MS in Applied Statistics – Business and Marketing Analytics Concentration as evidenced with his proposed collaboration with Fulton Financial. This is an exceptionally strong sabbatical proposal and I strongly support it.

b. Radha Pyati  
Dean

14 Sep 22  
Date

Please comment below on how this sabbatical relates to the school/college goals or long range plans.

I support this sabbatical proposal. The project Dr. McClintock proposes is an ambitious and far-reaching effort aligned with College goals that provides new opportunities for him and for our students, raises WCU's research profile, and leverages existing resources in a new and productive way.

13. Scott McClintock  
Signature of Faculty Applicant

9/14/22  
Date

14. Signature of SaLe Committee Chairperson (may include committee comments):

\_\_\_\_\_  
Signature of SaLe Chairperson

\_\_\_\_\_  
Date

15. Status of Applicant:            \_\_\_\_\_ Recommended            \_\_\_\_\_ Not Recommended

\_\_\_\_\_  
Signature of President or Designee

\_\_\_\_\_  
Date

16. The above detail is important to allow the SaLe Committee to determine academic purpose and to permit the President to implement his/her rights under CBA Article XVIII, A.

(All materials submitted herewith shall become part of the applicant's official personnel file under CBA Article XIII.)

*N.B. The application will be submitted electronically in PDF form. Please follow the procedures for submission as outlined in the "Overview" tab on the Provost's webpage.*