Request for Graduate Non-Curricular Changes

PLEASE USE THIS FORM FOR ALL NON-CURRICULAR CHANGE REQUESTS (changes in admission requirements or requirements for graduation, changes in existing or new policies/procedures, changes in program descriptions in catalog, general language changes in catalog).

SIGNATURES may not be required, depending on the nature of the request and from where it originates. Consult Graduate Council Chair.

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**

College: Pharmacy Dept/Division: Pharm. Sci.

Contact Person: Eric Blough Phone: x7394

Rationale for Request:

We would like to change the application due date from July 31 to "priority deadline". This change will allow those students who apply before the deadline to have a higher chance of getting admitted. This change is required for participation in the INTO program. It is hoped that this change will encourage early applications.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.
NOTE: all requests may not require all signatures.

Department/Division Chair [signature] 12/12/18 (Interim) Date Spring 2019

Registrar [signature] Date 12/17/18

College Curriculum Committee Chair [signature] Date 12/12/18
(or Dean if no college curriculum committee)

Graduate Council Chair [signature] Date 3/2/2019

NOTE: please complete information required on the following pages before obtaining signatures above.

Request for Graduate Non-Curricular Changes – Page 2

1. **Current Catalog Description (if applicable)**: Please insert the catalog description from the current catalog for entries you would like to change.

Admission Requirements
Applicants should follow the admissions process described in this catalog or at the Graduate Admissions website at www.marshall.edu/graduate/admissions/how-toapply-for-admission. Application deadline is July 31.

2. **Edits to current description**: Attach or Insert a PDF copy of the current catalog description prepared in MS WORD with strikethroughs to mark proposed deletions and use the highlight function to indicate proposed new text.

Admission Requirements
Applicants should follow the admissions process described in this catalog or at the Graduate Admissions website at www.marshall.edu/graduate/admissions/how-toapply-for-admission. ~~Application deadline is July 31~~. Applicants are strongly encouraged to apply by the priority deadline (July 31) where applicable.

3. **New Catalog Description:** Provide a "clean" copy of your proposed description without strikethroughs or highlighting. This should be what you are proposing for the new description.

Admission Requirements
Applicants should follow the admissions process described in this catalog or at the Graduate Admissions website at www.marshall.edu/graduate/admissions/how-toapply-for-admission. Applicants are strongly encouraged to apply by the priority deadline (July 31) where applicable.

Request for Graduate Non-Curricular Changes – Page 5

Please insert below your proposed change information for the Graduate Council agenda.

Type of change request: Non curricluar change to application due date

Department: Pharmaceutical Sciences and Research

Degree program: MS

Effective date (fall/spring/summer, year): Spring 2019

Chair: Tracy Christofero | **GC#1: Area of Emphasis**

Request for Graduate Addition, Deletion, or Change of Area of Emphasis-Page 1

1.Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2.E-mail one PDF copy without signatures to the Graduate Council Chair. If attachments included, please merge into a single file.
3.***The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.***

College: Medicine

Dept/Division: Biomedical Research

Contact Person: Todd L. Green, Ph.D.

Phone: 696-3531

Action Requested

Check action requested: ☒ Addition ☐ Deletion ☐ Change

Degree Program Biomedical Research M.S. GM80

Area of Emphasis Medical Sciences Research GM87

Effective Term/Year Fall 20 19 Spring 20 ☐ Summer 20 ☐

Notifications

Attach a copy of written notification regarding this curriculum request to the following:

1. Statement of Non-Duplication: If this area of emphasis will be similar in title or content to an existing area of emphasis, please send a memo to the affected department/division and include a copy with this packet as well as the response received from the affected department.

2. If your department/division requires additional faculty, equipment, or specialized materials, attach an estimate of cost and time required to secure these items.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head	Date 1/17/19
Registrar 260102	Date 1-31-19
College Curriculum Chair Todd L. Green	Date 1/30/19
College Dean	Date 1/31/19
Graduate Council Chair Lori Bernard	Date 3/2/2019
Provost/VP Academic Affairs	Date
President	Date

Request for Graduate Addition, Deletion, or Change of Area of Emphasis-Page 2

1. Please provide a rationale for addition, deletion, change:

Research is becoming an important factor in admission to medical school and particularly in applying for residencies after receiving the MD degree. Having research experience through the Medical Sciences Research area of emphasis will be beneficial to students when they apply to medical school, especially if they want the MD/PhD combined degree, and residencies.

2. Please describe any changes in curriculum:
Course number, title, credit hours. Note whether each course is required or optional. Enter NONE if no change.

Curriculum attached.

3. **Additional Resource Requirements:** If your program requires additional faculty, equipment or specialized materials to ADD or CHANGE this Area of Emphasis attach an estimate of the time and money required to secure these items. May attach separate page if needed
NOTE: approval of this form does not imply approval for additional resources. Enter NOT APPLICABLE if not applicable.

No additional faculty and resources are required.

4. **NON-DUPLICATION:**
If a question of possible duplication occurs, attach a copy of the correspondence sent to the appropriate department(s) describing the request and any response received from them.
Enter NONE if not applicable.

This is similar to the current Medical Sciences area of emphasis in the Biomedical Research Program. But students take different classes and spend more time doing research in this new area of emphasis.

For catalog changes as a result of the above action, please fill in the following pages.

Request for Graduate Addition, Deletion, or Change of Area of Emphasis-Page 3

5. ***Current* Catalog Description**

Insert the *Current* Catalog Description and page number from the latest catalog for entries you would like to change. (May attach separate page if needed)

Attached.

6. ***Edits* to the Current Description**

Attach a PDF copy of the current catalog description prepared in MS Word with strikethroughs to mark proposed deletions and use the highlight function to indicate proposed new text.

7. ***New* Catalog Description**

Insert a 'clean' copy of your proposed description, i.e., no strikethroughs or highlighting included. This should be what you are proposing for the new description. (May attach separate page if needed)

Attached.

Request for Graduate Addition, Deletion, or Change of Area of Emphasis-Page 4

Please insert in the text box below your Area of Emphasis change information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:
Area of Emphasis Title:
Credit Hours:
Type of Change Requested: *(addition, deletion, change)*
Term to Take Effect: *(Fall, Spring, Summer/Year)*
Rationale:

Department: Biomedical Research
Area of Emphasis Title: Medical Sciences Research
Credit Hours: 36
Type of Change Requested: addition
Term to Take Effect: Fall 2019
Rationale: Research is becoming an important factor in admission to medical school and particularly in applying for residencies after receiving the MD degree. Having research experience through the Medical Sciences Research area of emphasis will be beneficial to students when they apply to medical school, especially if they want the MD/PhD combined degree, and to residencies.

Medical Sciences Research Area of Emphasis

Course Title	Course Number	Credit Hours	Required/Optional
Year 1 – Fall Semester			
Introduction to Nucleic Acids and Proteins	BMR 601	3	Required
Introduction to Cell Structure and Metabolism	BMR 602	3	Required
Seminar	BMR 680	1	Required
Introduction to Research	BMR 785	3	Required
Year 1 – Spring Semester			
Regulation of Cell Function	BMR 603	2	Required
Cellular Basis of Disease	BMR 604	1	Required
Seminar	BMR 680	1	Required
Mammalian Physiology	PHS 628	6	Optional
OR			
Online Survey Tools, Relational and Data Warehousing, and Data Manipulation	CTS 614	3	Optional
Year 1 – Summer I Semester			
Research	BMR 882	4	Required
Year 2 – Fall Semester			
Seminar	BMR 680	1	Required
Research	BMR 882	5	Required
Medical Microbiology I	MCB 631	3	Optional
Year 2 – Spring Semester			
Seminar	BMR 680	1	Required
Biostatistics	BMR 617 (or equivalent)	3	Required
Research	BMR 882	3	Required
Online Survey Tools, Relational and Data Warehousing, and Data Manipulation	CTS 614	3	Optional
OR			
Mammalian Physiology	PHS 628	6	Optional
Medical Microbiology II	MCB 631	2	Optional

Required courses
BMR 601
BMR 602
BMR 603
BMR 604
BMR 680
BMR 785
BMR 882 (12 hours minimum)
Biostatistics course

Elective courses
CTS 614
PHS 628
MCB 631
MCB 632

A student has to complete a minimum of 36 hours to get the degree.

CURRENT CATALOG DESCRIPTION

Page 216

BIOMEDICAL RESEARCH, M.S. (Thesis), M.S. (Non-Thesis), Ph.D., M.D./Ph.D.

Areas of Emphasis

Cardiovascular Disease
Cell Biology
Medical Sciences (M.S. only)
Neurobiology and Addiction
Obesity and Related Diseases
Toxicology and Environmental Health

Page 218

BIOMEDICAL RESEARCH, M.S. (Non-Thesis Medical Sciences Area of Emphasis)

A minimum of 36 credit hours is required for the non-thesis degree. In addition, the student must pass a written comprehensive examination covering BMR 601-604, MCB 631, MCB 632, and PHS 628. All students are required to successfully complete the following core curriculum:

BMR 601	Introduction to Nucleic Acids and Proteins
BMR 602	Introduction to Cell Structure and Metabolism
BMR 603	Regulation of Cell Function
BMR 604	Cellular Basis of Disease
BMR 617	Statistical Techniques for the Biomedical Sciences

(or MTH 518, BSC 517, PSY 517, EDF 517 or equivalent)

BMR 680	Seminar (minimum of 4 hrs.)
BMR 785	Introduction to Research
MCB 631	Medical Microbiology I
MCB 632	Medical Microbiology II
PHS 628	Neurophysiology

Elective classes include PHS 629 (Mammalian Physiology), PMC 621 (Medical Pharmacology I) and PMC 622 (Medical Pharmacology II).

In addition, after 12 hours of coursework has been completed, the student must submit to an M.S. Plan of Study form to the Dean of the Graduate College.

To remain in good academic standing and to graduate, the student must have a minimum graduate GPA of 3.0.

EDITS TO CURRENT CATALOG DESCRIPTION

BIOMEDICAL RESEARCH, M.S. (Thesis), M.S. (Non-Thesis), Ph.D., M.D./Ph.D.

Areas of Emphasis

Cardiovascular Disease
Cell Biology
Medical Sciences (M.S. only)
Medical Sciences Research (M.S. only)
Neurobiology and Addiction
Obesity and Related Diseases
Toxicology and Environmental Health

BIOMEDICAL RESEARCH, M.S. (Non-Thesis Medical Sciences Area of Emphasis)

A minimum of 36 credit hours is required for the non-thesis degree. In addition, the student must pass a written comprehensive examination covering BMR 601-604, MCB 631, MCB 632, and PHS 628. All students are required to successfully complete the following core curriculum:

BMR 601	Introduction to Nucleic Acids and Proteins
BMR 602	Introduction to Cell Structure and Metabolism
BMR 603	Regulation of Cell Function
BMR 604	Cellular Basis of Disease
BMR 617	Statistical Techniques for the Biomedical Sciences

(or MTH 518, BSC 517, PSY 517, EDF 517 or equivalent)

BMR 680	Seminar (minimum of 4 hours)
BMR 785	Introduction to Research
MCB 631	Medical Microbiology I
MCB 632	Medical Microbiology II
PHS 628	Neurophysiology

Elective classes include PHS 629 (Mammalian Physiology), PMC 621 (Medical Pharmacology I) and PMC 622 (Medical Pharmacology II).

In addition, after 12 hours of coursework has been completed, the student must submit to an M.S. Plan of Study form to the Dean of the Graduate College.

To remain in good academic standing and to graduate, the student must have a minimum graduate GPA of 3.0.

BIOMEDICAL RESEARCH, M.S. (Non-Thesis Medical Sciences Research Area of Emphasis)

A minimum of 36 credit hours is required for the non-thesis degree. In addition, the student must either pass a written comprehensive examination covering BMR 601-604 and BMR 882, or have a research manuscript accepted or submitted for publication in a peer-reviewed journal with the student as first author.

All students are required to successfully complete the following core curriculum:

BMR 601	Introduction to Nucleic Acids and Proteins
BMR 602	Introduction to Cell Structure and Metabolism
BMR 603	Regulation of Cell Function
BMR 604	Cellular Basis of Disease
BMR 617	Statistical Techniques for the Biomedical Sciences

(or MTH 518, BSC 517, PSY 517, EDF 517 or equivalent)

BMR 680	Seminar (minimum of 4 hours)
BMR 785	Introduction to Research
BMR 882	Research (minimum of 12 hours)

Recommended elective classes are CTS 614 (Online Survey Tools, Relational and Data Warehousing, and Data Manipulation), PHS 629 (Mammalian Physiology), MCB 631 (Medical Microbiology I), and MCB 632 (Medical Microbiology II).

In addition, after 12 hours of coursework has been completed, the student must submit an M.S. Plan of Study form to the Dean of the Graduate College.

To remain in good academic standing and to graduate, the student must have a minimum graduate GPA of 3.0.

NEW CATALOG DESCRIPTION

BIOMEDICAL RESEARCH, M.S. (Thesis), M.S. (Non-Thesis), Ph.D., M.D./Ph.D.

Areas of Emphasis

Cardiovascular Disease
Cell Biology
Medical Sciences (M.S. only)
Medical Sciences Research (M.S. only)
Neurobiology and Addiction
Obesity and Related Diseases
Toxicology and Environmental Health

BIOMEDICAL RESEARCH, M.S. (Non-Thesis Medical Sciences Area of Emphasis)

A minimum of 36 credit hours is required for the non-thesis degree. In addition, the student must pass a written comprehensive examination covering BMR 601-604, MCB 631, MCB 632, and PHS 628. All students are required to successfully complete the following core curriculum:

BMR 601 Introduction to Nucleic Acids and Proteins
BMR 602 Introduction to Cell Structure and Metabolism
BMR 603 Regulation of Cell Function
BMR 604 Cellular Basis of Disease
BMR 617 Statistical Techniques for the Biomedical Sciences
(or MTH 518, BSC 517, PSY 517, EDF 517 or equivalent)
BMR 680 Seminar (minimum of 4 hours)
BMR 785 Introduction to Research
MCB 631 Medical Microbiology I
MCB 632 Medical Microbiology II
PHS 628 Neurophysiology

Elective classes include PHS 629 (Mammalian Physiology), PMC 621 (Medical Pharmacology I) and PMC 622 (Medical Pharmacology II).

In addition, after 12 hours of coursework has been completed, the student must submit to an M.S. Plan of Study form to the Dean of the Graduate College.

To remain in good academic standing and to graduate, the student must have a minimum graduate GPA of 3.0.

BIOMEDICAL RESEARCH, M.S. (Non-Thesis Medical Sciences Research Area of Emphasis)

A minimum of 36 credit hours is required for the non-thesis degree. In addition, the student must pass a written comprehensive examination covering BMR 601-604 and BMR 882, or have a research manuscript accepted or submitted for publication in a peer-reviewed journal with the student as first author.

All students are required to successfully complete the following core curriculum:

BMR 601 Introduction to Nucleic Acids and Proteins
BMR 602 Introduction to Cell Structure and Metabolism
BMR 603 Regulation of Cell Function
BMR 604 Cellular Basis of Disease
BMR 617 Statistical Techniques for the Biomedical Sciences
(or MTH 518, BSC 517, PSY 517, EDF 517 or equivalent)
BMR 680 Seminar (minimum of 4 hours)
BMR 785 Introduction to Research
BMR 882 Research (minimum of 12 hours)

Recommended elective classes are CTS 614 (Online Survey Tools, Relational and Data Warehousing, and Data Manipulation), PHS 629 (Mammalian Physiology), MCB 631 (Medical Microbiology I), and MCB 632 (Medical Microbiology II).

In addition, after 12 hours of coursework has been completed, the student must submit an M.S. Plan of Study form to the Dean of the Graduate College.

To remain in good academic standing and to graduate, the student must have a minimum graduate GPA of 3.0.

Chair: Tracy Christofero | **GC#6: Course Addition**

Request for Graduate Course Addition

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. ***The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.***

College: Medicine | Dept/Division: Department of Clinic | Alpha Designator/Number: CTS 611 | ○ Graded ◉ CR/NC

Contact Person: Alfred Cecchetti, PhD, MSc, MSc IS | Phone: 304-691-1585

NEW COURSE DATA:

New Course Title: Machine Learning Journal Club

Alpha Designator/Number: C T S 6 1 1

Title Abbreviation: M A C H I N E L E A R N J O U R N A L C L U

(Limit of 25 characters and spaces)

Course Catalog Description: (Limit of 30 words)

Articles that describe either clinical or translational research along with machine learning techniques will be discussed. Students are expected to read, describe and present at these fourteen, 1 hour weekly sessions.

Co-requisite(s): none | First Term to be Offered: Summer 2019

Prerequisite(s): none | Credit Hours: 1

Course(s) being deleted in place of this addition (*must submit course deletion form*): none

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head	Date 12/9/18
Registrar 511401	Date 12/10/18
College Curriculum Chair Todd L. Green	Date 12/10/18
Graduate Council Chair Lori Hunnell	Date 3/2/2019

Request for Graduate Course Addition - Page 2

College: Medicine Department/Division: Department of Clinical and T Alpha Designator/Number: CTS 611

Provide complete information regarding the new course addition for each topic listed below. Before routing this form, a complete syllabus also must be attached addressing the items listed on the first page of this form.

1. FACULTY: Identify by name the faculty in your department/division who may teach this course.

Alfred Cecchetti, PhD, MSc, MSc IS

2. DUPLICATION: If a question of possible duplication occurs, attach a copy of the correspondence sent to the appropriate department(s) describing the proposal. Enter "***Not Applicable***" if not applicable.

A Marshall journal club does not exist with a focus on novel machine learning uses in clinical cases.

3. REQUIRED COURSE: If this course will be required by another deparment(s), identify it/them by name. Enter "***Not Applicable***" if not applicable.

Not Applicable

4. AGREEMENTS: If there are any agreements required to provide clinical experiences, attach the details and the signed agreement. Enter "***Not Applicable***" if not applicable.

Not Applicable

5. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials to teach this course, attach an estimate of the time and money required to secure these items. (Note: Approval of this form does not imply approval for additional resources.) Enter "***Not Applicable***" if not applicable.

Not Applicable

6. COURSE OBJECTIVES: (May be submitted as a separate document)

The Machine Learning Journal Club course objectives are to introduce students to the algorithms used in translational research to understand and predict the disease process either in humans or animals.

7. COURSE OUTLINE (May be submitted as a separate document)

Discussion of various topics in machine learning and translational research.

8. SAMPLE TEXT(S) WITH AUTHOR(S) AND PUBLICATION DATES (May be submitted as a separate document)

none

9. EXAMPLE OF INSTRUCTIONAL METHODS (Lecture, lab, internship)

lecture pass/fail

Request for Graduate Course Addition - Page 4

10. EXAMPLE EVALUATION METHODS (CHAPTER, MIDTERM, FINAL, PROJECTS, ETC.)

Attendance and participation in the journal club

11. ADDITIONAL GRADUATE REQUIREMENTS IF LISTED AS AN UNDERGRADUATE/GRADUATE COURSE

none

12. PROVIDE COMPLETE BIBLIOGRAPHY (May be submitted as a separate document)

Selected on a weekly basis, examples are:

Dugan, T. M., Mukhopadhyay, S., Carroll, A., & Downs, S. (2015). Machine learning techniques for prediction of early childhood obesity. Applied clinical informatics, 6(03), 506-520.

Jindal, K., & Baliyan, N. G. (2017). Obesity Prediction using Ensemble Machine Learning (Doctoral dissertation).

Hashem, S., Esmat, G., Elakel, W., Habashy, S., Raouf, S. A., Elhefnawi, M., ... & ElHefnawi, M. (2018). Comparison of Machine Learning Approaches for Prediction of Advanced Liver Fibrosis in Chronic Hepatitis C Patients. IEEE/ACM transactions on computational biology and bioinformatics, 15(3), 861-868.

Request for Graduate Course Addition - Page 5

Please insert in the text box below your course summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:
Course Number and Title:
Catalog Description:
Prerequisites:
First Term Offered:
Credit Hours:

Department: Department of Clinical and Translational Sciences (DCTS)
Course Number and Title: CTS 611 Machine Learning Journal Club
Catalog Description: Articles that describe either clinical or translational research along with machine learning techniques will be discussed. Students are expected to read, describe and present at these fourteen, 1 hour weekly sessions.
Prerequisites: None
First Term Offered: Summer 2019
Credit Hours: 1

MARSHALL UNIVERSITY
Joan C. Edwards School of Medicine

CTS 611 Machine Learning Journal Club
Marshall University, School of Medicine
Summer 2019

General Information:

Professor: Alfred Cecchetti, PhD, MSc, MSc IS
Phone: 304-691-1585
Email: cecchetti@marshall.edu
Office: 281 TGRI, ECCC 2nd Floor

Lecture: TBA

Course Description:
Articles that describe either clinical or translational research along with machine learning techniques will be discussed. Students are expected to read, describe and present at these fourteen, 1 hour weekly sessions.

Credit Hours: 1

Course Focus
Translational research is concerned with bringing bioscience research discoveries into patient care. Translational studies aim to accelerate research findings from bench (biological or mathematical using animal as well as human vectors) to bedside and into widespread clinical practice. The students will take part in discussion of various topics in machine learning and translational research.

Text and Materials:
Selected on a weekly basis, examples are:

1. Dugan, T. M., Mukhopadhyay, S., Carroll, A., & Downs, S. (2015). Machine learning techniques for prediction of early childhood obesity. Applied clinical informatics, 6(03), 506-520.

2. Jindal, K., & Baliyan, N. G. (2017). Obesity Prediction using Ensemble Machine Learning (Doctoral dissertation).

3. Hashem, S., Esmat, G., Elakel, W., Habashy, S., Raouf, S. A., Elhefnawi, M., ... & ElHefnawi, M. (2018). Comparison of Machine Learning Approaches for Prediction of Advanced Liver Fibrosis in Chronic Hepatitis C Patients. IEEE/ACM transactions on computational biology and bioinformatics, 15(3), 861-868.

Program Outcomes:
The Machine Learning Journal Club course objectives are to introduce students to the algorithms used in translational research to understand and predict the disease process either in humans or in animals

Policies:
Attendance Policy: Attendance is required, notification through email or in the classroom should be at least 24 hours in advance.

MARSHALL UNIVERSITY
Joan C. Edwards School of Medicine

Grading policy: All missing assignments are graded with zero, late assignments will have a penalty. If submitted after due date will be considered missing if they are not submitted by the following session (one week).
Pass/fail

Grade Weights:
Attendance, In-class activity & participation 100%

Classroom and Lab Behavior: The use of mobile devices (making calls, texting, emailing, etc.) is not permitted during class and lab times. You may leave your phone on vibrate or silence mode in order to receive emergency calls.

Academic Integrity: All students are expected to present and represent their own original work and properly credit sources used in preparation of their own original work. Discussion of programming assignments and helping each other with debugging is permissible but copying from others or the internet is not permissible.

Harassment Policy: The University strongly disapprove and expressly prohibit any form of harassment or discrimination based on race, color, national origin, ancestry, religion, sex, age, sexual orientation, disability, veteran status, marital status or any other characteristic protected by applicable federal, state or local laws.

ADA Policy: If a student wishes to be identified as having a physical, mental, or learning disability, that may or may not require reasonable accommodation(s), he/she must register with the Office of Accessibility. These registered students should identify themselves to their instructors and provide a written statement from the Accessibility Office that indicates the appropriate accommodations. The process of a student self-proclaiming the need for accommodation should occur as early in the semester as possible.

FERPA: The University is committed to fully respecting and protecting the rights of students under the Family Educational Rights and Privacy Act (FERPA). These rights generally include the right to inspect, review and seek amendment to the student's education records and the right to provide written consent before personally identifiable information from education records is disclosed. Under FERPA, students have the right to file a complaint with the US Department of Education concerning alleged failures to comply with FERPA.

Chair: Tracy Christofero | **GC#6: Course Addition**

Request for Graduate Course Addition

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. ***The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.***

College: Medicine | Dept/Division: Department of Clinic | Alpha Designator/Number: CTS 612 | (•) Graded ( ) CR/NC

Contact Person: Alfred Cecchetti, PhD, MSc, MSc IS | Phone: 304-691-1585

NEW COURSE DATA:

New Course Title: Introduction To Clinical Machine Learning

Alpha Designator/Number: C T S 6 1 2

Title Abbreviation: I n t r o C l i n M a c h i n e L e a r n

(Limit of 25 characters and spaces)

Course Catalog Description: (Limit of 30 words)

This course is designed for those who are interested in using machine learning with a focus on translational medical research, which is concerned with bringing bioscience research discoveries into patient care. This course explores the characteristic of its methods, its benefits and limitations. Explain and describe different learning algorithms. machine learning journal club is optional

Co-requisite(s): none | First Term to be Offered: Summer 2019

Prerequisite(s): none | Credit Hours: 3

Course(s) being deleted in place of this addition (*must submit course deletion form*): none

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head	Date 12/9/18
Registrar 511401	Date 12/10/18
College Curriculum Chair Todd L Gum	Date 12/10/18
Graduate Council Chair Lori Hunnicutt	Date 3/2/2019

Request for Graduate Course Addition - Page 2

College: Medicine Department/Division: Department of Clinical and T Alpha Designator/Number: CTS 612

Provide complete information regarding the new course addition for each topic listed below. Before routing this form, a complete syllabus also must be attached addressing the items listed on the first page of this form.

1. FACULTY: Identify by name the faculty in your department/division who may teach this course.

Alfred A Cecchetti, PhD, MSc, MSc IS

2. DUPLICATION: If a question of possible duplication occurs, attach a copy of the correspondence sent to the appropriate department(s) describing the proposal. Enter "***Not Applicable***" if not applicable.

This course is unique since it focuses on machine learning for specific translational use cases that draw from the Marshall Clinical Data Warehouse. Current course offerings are not translational (animal and human) research oriented.

3. REQUIRED COURSE: If this course will be required by another deparment(s), identify it/them by name. Enter "***Not Applicable***" if not applicable.

Not Applicable

4. AGREEMENTS: If there are any agreements required to provide clinical experiences, attach the details and the signed agreement. Enter "***Not Applicable***" if not applicable.

Not Applicable

5. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials to teach this course, attach an estimate of the time and money required to secure these items. (Note: Approval of this form does not imply approval for additional resources.) Enter "***Not Applicable***" if not applicable.

Not Applicable

6. COURSE OBJECTIVES: (May be submitted as a separate document)

Translational research is concerned with bringing bioscience research discoveries into patient care. Translational studies aim to accelerate research findings from bench (biological or mathematical using animal as well as human vectors) to bedside and into widespread clinical practice. Students in our courses will learn 1) the language of the medical researcher (e. g. , ICD9/10, LOINC, CPT, Animal NCIT , etc.), 2) how to organize/visualize data from the electronic medical record as well as other unstructured sources (animal or human) to define the clinical properties of many diseases, 3) the close association of informatics with global communication, security and privacy issues, and 4) how to analyze that data using models that classify, predict and perform "what if" analysis.

7. COURSE OUTLINE (May be submitted as a separate document)

see attached course outline

8. SAMPLE TEXT(S) WITH AUTHOR(S) AND PUBLICATION DATES (May be submitted as a separate document)

None

9. EXAMPLE OF INSTRUCTIONAL METHODS (Lecture, lab, internship)

Lecture

Request for Graduate Course Addition - Page 4

10. EXAMPLE EVALUATION METHODS (CHAPTER, MIDTERM, FINAL, PROJECTS, ETC.)

Exam 1 100 points, Exam 2 100 points, Exam 3 100 points, Exam 4 100 points, Project100 points

11. ADDITIONAL GRADUATE REQUIREMENTS IF LISTED AS AN UNDERGRADUATE/GRADUATE COURSE

None

12. PROVIDE COMPLETE BIBLIOGRAPHY (May be submitted as a separate document)

none

Request for Graduate Course Addition - Page 5

Please insert in the text box below your course summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:
Course Number and Title:
Catalog Description:
Prerequisites:
First Term Offered:
Credit Hours:

Department: Department of Clinical and Translational Sciences (DCTS)
Course Number and Title: CTS 612 Introduction To Clinical Machine Learning
Catalog Description: This course is designed for those who are interested in using machine learning with a focus on translational medical research (animal as well as human), which is concerned with bringing bioscience research discoveries into patient care. This course explores the characteristic of its methods, its benefits and limitations. Explain and describe different learning algorithms. machine learning journal club is optional
Prerequisites: None
First Term Offered: Summer 2019
Credit Hours: 3

Course Outline

2019	Events	Topic	Notes
		Overview Friendly Introduction to Machine Learning	Fundamentals
		Introduction to R programming Setup and Basic Operations	Fundamentals
		Introduction to R programming plotting	Fundamentals
		Introduction to R advanced topics	Fundamentals
		Data Warehouse Use as a data source for R	Fundamentals
		Data Warehouse relational vs OLAP cube - Used in R model building	Fundamentals
		Accessing the Data Warehouse using Excel - Understanding the source data for model building	Fundamentals
		Excel slicing and filtering- examining and cleaning the data source prior to model building	Fundamentals
		SQL basics- SQL Management Studio	Fundamentals
		SQL joins, views - creating the historical source data directly	Fundamentals
		SQL procedures and functions	Fundamentals
		Marshall Informatics Platform	Fundamentals
	Exam		Fundamentals
		Discussion of medical data within the data warehouse	Machine Learning
		Machine Learning Project Discussion	Machine Learning
		MS SQL to R and R back to MS SQL Pipeline	Machine Learning
		Using visualization in machine learning- How to present models	Machine Learning
		Introduction to Tableau	Machine Learning
		Tableau basic features	Machine Learning
		Machine Learning: Supervised vs Unsupervised Learning	Machine Learning
		Supervised Learning Classification	Machine Learning
		K-Nearest Neighbors	Machine Learning
	Exam		Machine Learning
		Decision Trees	Machine Learning
		Random Forests	Machine Learning
		Reliability of Random Forests	Machine Learning
		Regression Algorithms	Machine Learning
		Advantages & Disadvantages of Decision Trees	Machine Learning
		Support Vector Machines	Machine Learning
		Neural Networks	Machine Learning
		Model Evaluation: Overfitting & Under fitting	Machine Learning
		Understanding Different Evaluation Models	Machine Learning
	Exam		Machine Learning
		Model evaluation	Machine Learning
		Unsupervised Learning	Machine Learning
		K-Means Clustering plus Advantages & Disadvantages	Machine Learning
		Hierarchical Clustering plus Advantages & Disadvantages	Machine Learning
		Dimensionality Reduction & Collaborative Filtering	Machine Learning
		Dimensionality Reduction: Feature Extraction & Selection	Machine Learning

8-Apr-19	Exam		Machine Learning
		Model Evaluation	Algorithm evaluation
		ROC curves	Algorithm evaluation
		confusion matrix	Algorithm evaluation
		sensitivity and specificity	Algorithm evaluation
		Project discussion	Algorithm evaluation
		Advanced Use of machine learning	Algorithm evaluation
		Course Review	Algorithm evaluation
	Project	Project Presentation	Final Presentation

MARSHALL UNIVERSITY
Joan C. Edwards School of Medicine

CTS 612 Introduction to Clinical Machine Learning
Marshall University, School of Medicine
Summer 2019

General Information:

Professor: Alfred Cecchetti, PhD, MSc, MSc IS
Phone: 304-691-1585
Email: cecchetti@marshall.edu
Office: 281 TGRI, ECCC 2nd Floor

Lecture: TBA

Course Description: This course is designed for those who are interested in using machine learning with a focus on translational medical research, which is concerned with bringing bioscience research discoveries into patient care. This course explores the characteristic of its methods, its benefits and limitations. Explain and describe different learning algorithms. Machine learning journal club is optional

Credit Hours: 3

Course Focus

Translational research is concerned with bringing bioscience research discoveries into patient care. Translational studies aim to accelerate research findings from bench (biological or mathematical using animal as well as human vectors) to bedside and into widespread clinical practice. This course will focus on using historical and current data within algorithms that are used to predict outcomes of diseases and conditions.

Text and Materials:

Lecture notes, PowerPoint

Software:

Microsoft SQL Server (free version – developer addition)
Microsoft SQL Server Management Studio (free version)
R (free version)
Docker Community Edition for Mac (free)

Program Outcomes:

Students in our courses will learn

1. The language of the medical researcher (e. g., ICD9/10, LOINC, CPT, Animal NCIT, etc.),
2. How to organize/visualize data from the electronic medical record as well as other unstructured sources (animal or human) to define the clinical properties of many diseases,
3. The close association of informatics with global communication, security and privacy issues, and
4. How to analyze that data using models that classify, predict and perform "what if" analysis.

Topical Outline:

1. Introduction

2. Basic R programming
3. Data Warehouse
4. Basic SQL
5. Basic Tableau
6. Discussion of machine Learning models
7. Project presentation

Policies:

Attendance Policy: Attendance is required, notification through email or in the classroom should be at least 24 hours in advance.

Grading policy: All missing assignments are graded with zero, late assignments will have a penalty. If submitted after due date will be considered missing if they are not submitted by the following session (one week).

91% - 100% A
81% - 90 % B
71% - 80 % C
61% - 70 % D
51 % - 60% F

Grade Weights:

Exam 1 100 points,
Exam 2 100 points,
Exam 3 100 points,
Exam 4 100 points,
Project 100 points

Exams and Assignments: There will be four exams. A project will be discussed and assigned to the students.

Exam Makeup Policy: Make-up exams will be given only in the case of a documented emergency or with approval from the instructor at least 24 hours prior to the exam. Make-up exams may be different from the original exam.

Classroom and Lab Behavior: The use of mobile devices (making calls, texting, emailing, etc.) is not permitted during class and lab times. You may leave your phone on vibrate or silence mode in order to receive emergency calls.

Academic Integrity: All students are expected to present and represent their own original work and properly credit sources used in preparation of their own original work. Discussion of programming assignments and helping each other with debugging is permissible but copying from others or the internet is not permissible.

Harassment Policy: The University strongly disapprove and expressly prohibit any form of harassment or discrimination based on race, color, national origin, ancestry, religion, sex, age, sexual orientation, disability, veteran status, marital status or any other characteristic protected by applicable federal, state or local laws.

MARSHALL UNIVERSITY
Joan C. Edwards School of Medicine

ADA Policy: If a student wishes to be identified as having a physical, mental, or learning disability, that may or may not require reasonable accommodation(s), he/she must register with the Office of Accessibility. These registered students should identify themselves to their instructors and provide a written statement from the Accessibility Office that indicates the appropriate accommodations. The process of a student self-proclaiming the need for accommodation should occur as early in the semester as possible.

FERPA: The University is committed to fully respecting and protecting the rights of students under the Family Educational Rights and Privacy Act (FERPA). These rights generally include the right to inspect, review and seek amendment to the student's education records and the right to provide written consent before personally identifiable information from education records is disclosed. Under FERPA, students have the right to file a complaint with the US Department of Education concerning alleged failures to comply with FERPA.

Chair: Tracy Christofero | **GC#6: Course Addition**

Request for Graduate Course Addition

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. ***The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.***

College: Medicine | Dept/Division: Department of Clinic | Alpha Designator/Number: CTS 615 | (●) Graded ( ) CR/NC

Contact Person: Dr. Alfred Cecchetti | Phone: 304-691-1585

NEW COURSE DATA:

New Course Title: Introduction to Clinical Databases

Alpha Designator/Number: C T S 6 1 5

Title Abbreviation: intro clinical database (Limit of 25 characters and spaces)

Course Catalog Description: (Limit of 30 words)

This course is an introduction to the concepts of database processing and management especially as it relates to clinical translational research. The focus is to bring bioscience research discoveries into patient care. Primary topics include discussions of major database types, history of databases and database issues, security, database principles, DBMS, RDBMS, SQL Queries, Big Data, Marshall Clinical Data Warehouse.

Co-requisite(s): None | First Term to be Offered: Summer 2019

Prerequisite(s): None | Credit Hours: 3

Course(s) being deleted in place of this addition (*must submit course deletion form*): None

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head	Date 12/9/18
Registrar 5/14/01	Date 12/10/18
College Curriculum Chair Todd L. Savarese	Date 12/10/18
Graduate Council Chair Lori Hunnicutt	Date 3/2/2019

Request for Graduate Course Addition - Page 2

College: Medicine | Department/Division: Department of Clinical and T | Alpha Designator/Number: CTS 615

Provide complete information regarding the new course addition for each topic listed below. Before routing this form, a complete syllabus also must be attached addressing the items listed on the first page of this form.

1. FACULTY: Identify by name the faculty in your department/division who may teach this course.

Gouthami Kothakapu, MSc CS

2. DUPLICATION: If a question of possible duplication occurs, attach a copy of the correspondence sent to the appropriate department(s) describing the proposal. Enter "***Not Applicable***" if not applicable.

This course is unique in the following ways:

1. Students will be working with de-identified data from MU-JCESOM Clinical Data Warehouse.
2. The course will be tailored towards understanding clinical and translational research database systems.

3. REQUIRED COURSE: If this course will be required by another deparment(s), identify it/them by name. Enter "***Not Applicable***" if not applicable.

Not Applicable

4. AGREEMENTS: If there are any agreements required to provide clinical experiences, attach the details and the signed agreement. Enter "***Not Applicable***" if not applicable.

Not Applicable

5. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials to teach this course, attach an estimate of the time and money required to secure these items. (Note: Approval of this form does not imply approval for additional resources.) Enter "***Not Applicable***" if not applicable.

Not Applicable

6. COURSE OBJECTIVES: (May be submitted as a separate document)

Upon completion of this course, students are expected to:
1. Understand different database models
2. Understand the relational database model
3. Write queries in SQL
4. Database design UML and ER Modeling
5. Understand Data Warehouse based on Marshall Data Sources
6. Learn REDCap

7. COURSE OUTLINE (May be submitted as a separate document)

Week 1 - Introduction to Database systems, Structure and Unstructured Data, History
Week 2 - Database Models – RDBMS, NoSQL, OODB, etc.
Week 3 - The relational Database Model – advantages, disadvantages, ACID properties
Week 4 - Entity Relationship Modeling
Week 5, 6 - Introduction to Structured Query Language (SQL) - create, insert, update, delete
- Installation Instructions for MS SQL Server
Week 7 - Advanced SQL - joins, views stored procedures, functions
Week 8 - MIDTERM
Week 9 - Advanced Concepts - Security, Connectivity, Big Data
Week 10 - Data Warehouse
Week 11 - Clinical Research Data at MU and its terms: Affinity, Centricity, Cerner, All Scripts
Week 12 - Closely work on demo data from procedures, registration, diagnosis, laboratory, etc. tables
Week 13 - Exploring tools like REDCap for Data Collection and Management
Week 14 - FINAL

8. SAMPLE TEXT(S) WITH AUTHOR(S) AND PUBLICATION DATES (May be submitted as a separate document)

Text and Materials:
Cornel, Database Systems, 12th edition ISBN: 978-1-3056-2747-2, Cengage L (free pdf available online)
http://cri.uhicago.edu/crdw/

Software:
Microsoft Access
Microsoft SQL Server
Microsoft SQL Server Management Studio

9. EXAMPLE OF INSTRUCTIONAL METHODS (Lecture, lab, internship)

Lecture

Request for Graduate Course Addition - Page 4

10. EXAMPLE EVALUATION METHODS (CHAPTER, MIDTERM, FINAL, PROJECTS, ETC.)

Class Assignments 30%
Mid-terms 30%
Final Exam 30%
Attendance, In-class activity & participation 10%

11. ADDITIONAL GRADUATE REQUIREMENTS IF LISTED AS AN UNDERGRADUATE/GRADUATE COURSE

Not Applicable

12. PROVIDE COMPLETE BIBLIOGRAPHY (May be submitted as a separate document)

None

Request for Graduate Course Addition - Page 5

Please insert in the text box below your course summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:
Course Number and Title:
Catalog Description:
Prerequisites:
First Term Offered:
Credit Hours:

Department: Department of Clinical and Translational Sciences (DCTS)

Course Number and Title: CTS 615 Introduction to Clinical Databases

Catalog Description: This course is an introduction to the concepts of database processing and management especially as it relates to clinical translational research. The focus is to bring bioscience research discoveries into patient care. Primary topics include discussions of major database types, history of databases and database issues, security, database principles, DBMS, RDBMS, SQL Queries, Big Data, Marshall Clinical Data Warehouse.

Prerequisites: None

First Term Offered: Summer 2019

Credit Hours: 3

MARSHALL UNIVERSITY
Joan C. Edwards School of Medicine

CTS 615 Introduction to Clinical Databases Marshall University, School of Medicine
Summer 2019

General Information:

Professor: Gouthami Kothakapu
Phone: 304-691-6816
Email: kothakapu@marshall.edu
Office: 281 TGRI, ECCC 2nd Floor

Lecture: TBA

Course Description: This course is an introduction to the concepts of database processing and management especially as it relates to clinical translational research. The focus is on translational research, which is concerned with bringing bioscience research discoveries into patient care. Primary topics include discussions of major database types, specifically relational databases, discussion of the history of databases and database issues, database principles, Database Management Systems (DBMS), SQL queries, data warehousing and big data. Data based on the Marshall Clinical Data Warehouse will be used.

Credit Hours: 3

Course Focus

Translational research is concerned with bringing bioscience research discoveries into patient care. Translational studies aim to accelerate research findings from bench (biological or mathematical using animal as well as human vectors) to bedside and into widespread clinical practice.

Students in our courses will learn 1) the language of the medical researcher (e.g., ICD9/10, CPT, LOINC, Animal terminologies, etc.), 2) how to organize data from the electronic medical record as well as other unstructured sources (animal or human) to define the clinical properties of many diseases, 3) the close association of informatics with security and privacy issues and 4) the core functions necessary to develop novel technologies that are used to acquire and analyze translational data in an integrated fashion.

Text and Materials:

Cornel, Database Systems, 12th edition ISBN: 978-1-3056-2747-2, Cengage L (free pdf available online)
http://cri.uhicago.edu/crdw/

Software:

Microsoft Access
Microsoft SQL Server
Microsoft SQL Server Management Studio

Program Outcomes: The goal of this program is to equip physicians in training and other biomedical scientists with information and training they need to translate basic clinical advances into improved patient care that will enhance the quality of life for patients in the Appalachian region, particularly southern West Virginia. Students will receive education in clinical trial design, epidemiology, statistics, informatics, Technology and translational research. Upon successful graduation from this program:

1. Students will be able to lead clinical trials of new drugs and procedures in West Virginia, particularly in its rural regions
2. Students will be strong applicants for positions in schools of medicine and medical centers that have clinical and translational science centers

Course Outcomes: The following outcomes have been adopted for this course. All outcomes listed below have direct relevance to course material. Upon completion of this course, students are expected to:

1. Understand different database models
2. Understand the relational database model
3. Relational Database design and using ER Modeling
4. Structured Query Language (SQL)
5. Understand Data Warehouse based on Marshall Data Sources

Topical Outline:

1. Introduction to Database systems
2. Database Models – RDBMS, NoSQL, OODB, etc.
3. The relational Database Model – advantages, disadvantages, ACID properties
4. Entity Relationship Modeling
5. Normalization of Database tables
6. Introduction to Structured Query Language (SQL) - create, insert, update, delete
7. Advanced SQL - joins, views, triggers, stored procedures
8. Data Security
9. Data Warehouse
10. Big Data
11. Clinical Data - Affinity, Centricity, Cerner, All Scripts
12. Closely work on example data from procedures, registration, diagnosis, laboratory, etc. tables
13. Exploring tools like REDCap for Data capture and management

Policies:

Attendance Policy: Attendance is required, notification through email or in the classroom should be at least 24 hours in advance.

Grading policy: All missing assignments are graded with zero, late assignments will have a penalty. If submitted after due date will be considered missing if they are not submitted by the following session (one week).

91% - 100% A
81% - 90 % B
71% - 80 % C
61% - 70 % D
51 % - 60% F

Grade Weights:

Class Assignments 30%
Mid-terms 30%
Final Exam 30%

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Joan C. Edwards School of Medicine

Attendance, In-class activity & participation 10%

Exams and Assignments: There will be two exams. One during middle of the semester including topics covered earlier. Another exam in the final week includes later topics discussed in the class after midterm. 4-5 assignments can be expected throughout the semester. Additional homework can be given weekly.

Exam Makeup Policy: Make-up exams will be given only in the case of a documented emergency or with approval from the instructor at least 24 hours prior to the exam. Make-up exams may be different from the original exam.

Classroom and Lab Behavior: The use of mobile devices (making calls, texting, emailing, etc.) is not permitted during class and lab times. You may leave your phone on vibrate or silence mode in order to receive emergency calls.

Academic Integrity: All students are expected to present and represent their own original work and properly credit sources used in preparation of their own original work. Discussion of programming assignments and helping each other with debugging is permissible but copying from others or the internet is not permissible.

Harassment Policy: The University strongly disapprove and expressly prohibit any form of harassment or discrimination based on race, color, national origin, ancestry, religion, sex, age, sexual orientation, disability, veteran status, marital status or any other characteristic protected by applicable federal, state or local laws.

ADA Policy: If a student wishes to be identified as having a physical, mental, or learning disability, that may or may not require reasonable accommodation(s), he/she must register with the Office of Accessibility. These registered students should identify themselves to their instructors and provide a written statement from the Accessibility Office that indicates the appropriate accommodations. The process of a student self-proclaiming the need for accommodation should occur as early in the semester as possible.

FERPA: The University is committed to fully respecting and protecting the rights of students under the Family Educational Rights and Privacy Act (FERPA). These rights generally include the right to inspect, review and seek amendment to the student's education records and the right to provide written consent before personally identifiable information from education records is disclosed. Under FERPA, students have the right to file a complaint with the US Department of Education concerning alleged failures to comply with FERPA.

Chair: Tracy Christofero | **GC#6: Course Addition**

Request for Graduate Course Addition

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. ***The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.***

College: Medicine Dept/Division: Department of Clinic Alpha Designator/Number: CTS 616 (●) Graded ( ) CR/NC

Contact Person: Alfred A Cecchetti PhD, MSc, MSc IS Phone: 304-691-1585

NEW COURSE DATA:

New Course Title: Introduction to Clinical Programming using C#

Alpha Designator/Number: C T S 6 1 6

Title Abbreviation: I N T R O C L I N I C A L P R O G R A M C #

(Limit of 25 characters and spaces)

Course Catalog Description: (Limit of 30 words)

Course will present C#, a tool that can be used to manipulate data within the Clinical database using LINQ/ other to connect the application to the database. The focus is on translational research, which is concerned with bringing bioscience research discoveries into patient care. This course is designed for those who are interested in medical research programming using console/web/smart-phone application technology

Co-requisite(s): none First Term to be Offered: Summer 2019

Prerequisite(s): none Credit Hours: 3

Course(s) being deleted in place of this addition (*must submit course deletion form*): none

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head	Date 12/9/18
Registrar 5114401	Date 12/10/18
College Curriculum Chair	Date 12/10/18
Graduate Council Chair	Date 3/2/2019

Request for Graduate Course Addition - Page 2

College: Medicine | Department/Division: Department of Clinical and T | Alpha Designator/Number: CTS 616

Provide complete information regarding the new course addition for each topic listed below. Before routing this form, a complete syllabus also must be attached addressing the items listed on the first page of this form.

1. FACULTY: Identify by name the faculty in your department/division who may teach this course.

Alfred A Cecchetti PhD, MSc, MSc IS

2. DUPLICATION: If a question of possible duplication occurs, attach a copy of the correspondence sent to the appropriate department(s) describing the proposal. Enter "***Not Applicable***" if not applicable.

This course is unique since it focuses on C# programming for clinical or machine learning use cases (e. g., interfacing clinical data warehouse, corpus building). Current course offerings are not medical research oriented.

3. REQUIRED COURSE: If this course will be required by another deparment(s), identify it/them by name. Enter "***Not Applicable***" if not applicable.

Not Applicable

4. AGREEMENTS: If there are any agreements required to provide clinical experiences, attach the details and the signed agreement. Enter "***Not Applicable***" if not applicable.

Not Applicable

5. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials to teach this course, attach an estimate of the time and money required to secure these items. (Note: Approval of this form does not imply approval for additional resources.) Enter "***Not Applicable***" if not applicable.

Not Applicable

6. COURSE OBJECTIVES: (May be submitted as a separate document)

(1) The student will setup the Integrated Development Environment (IDE) along with the tools required to develop medical applications.
(2) Understand the concepts and elementary use of .NET and the .NET library.
(3) Understand the syntax and use of C# as a development tool in a clinical translational environment.
(4) Be able to use C# in desktop, web and mobile phone application development with a focus on translational research.
(5) Student will learn what a clinical data warehouse is and how to access and manipulate data contained within it.

7. COURSE OUTLINE (May be submitted as a separate document)

see attached course outline

8. SAMPLE TEXT(S) WITH AUTHOR(S) AND PUBLICATION DATES (May be submitted as a separate document)

Visual Studio Community Edition (Free download)
MS SQL 2016 Community Edition (Free download)
Optional: Professional Visual Studio 2017, Bruce Johnson, ISBN: 978-1-119-40458-3. https://www.amazon.com/Professional-Visual-Studio-Bruce-Johnson/dp/1119404584

9. EXAMPLE OF INSTRUCTIONAL METHODS (Lecture, lab, internship)

lecture

Request for Graduate Course Addition - Page 4

10. EXAMPLE EVALUATION METHODS (CHAPTER, MIDTERM, FINAL, PROJECTS, ETC.)

Exam1 100 points, Exam2 100 points, Exam3 100 points, Exam4 100 points, Exam5 100 points, Exam6 100 points, Exam7 100 points

11. ADDITIONAL GRADUATE REQUIREMENTS IF LISTED AS AN UNDERGRADUATE/GRADUATE COURSE

none

12. PROVIDE COMPLETE BIBLIOGRAPHY (May be submitted as a separate document)

none

Request for Graduate Course Addition - Page 5

Please insert in the text box below your course summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:
Course Number and Title:
Catalog Description:
Prerequisites:
First Term Offered:
Credit Hours:

Department: Department of Clinical and Translational Sciences (DCTS)
Course Number and Title: CTS 616 Introduction to Clinical Programming using C#
Catalog Description: Course will present C#, a tool that can be used to manipulate data within the Clinical database using LINQ/ other to connect the application to the database. The focus is on translational research, which is concerned with bringing bioscience research discoveries into patient care. This course is designed for those who are interested in medical research programming using console/web/smart-phone application technology
Prerequisites: none
First Term Offered: Summer 2019
Credit Hours: 3

Course outline for Clincal Programming using C#

Week 1 and 2	I.Introduction	
	A.Hardware and Software	
	B.How Computers Store Data	
	C.How a Program Works	
	D.Graphical User Interfaces	
	E.Objects	
	F.The Program Development Process	
	G.Getting Started with the Visual Studio Environment	
		exam
Week 3 and 4	II.Getting Started with Forms and Controls	
	A.Creating the GUI for Your First Visual C# Application	
	CSC 153 June 2016	
	B. Introduction to C# Code	
	C. Writing Code for the Hello World Application	
	D. Label Control	
	E. Making Sense of IntelliSense	
	F. PictureBox Controls	
	G. Comments, Blank Lines, and Indentation	
	H. Writing the Code to Close an Application's Form	
	I. Dealing with Syntax Error	
		exam
Week 5 and 6	III. Reading Input with TextBox Controls	
	A. A First Look at Variables	
	B. Numeric Data Type and Variables	
	C. Performing Calculations	
	D. Inputting and Outputting Numeric Values	
	E. Formatting Numbers with the ToString Method	
	F. Simple Exception Handling	
	G. Using Named Constants	
	H. Declaring Variables as Fields	
	I. Using the Math Class	
	J. More GUI Details	
		exam
	K. Using the Debugger to Locate Logic Errors	
Week 7 and 8	IV. Decision Structures and the if Statement	
	A. The if-else Statement	
	B. Nested Decision Structures	
	C. Logical Operators	
	D. bool Variables and Flags	
	E. Comparing Strings	
	F. Preventing Data Conversion Exceptions with the TryParse Method	
	G. Input Validation	
	H. Radio Buttons and CheckBoxes	
	I. The switch Statement	
	J. Introduction to List Boxes	
		exam

Course outline for Clincal Programming using C#

week 9 and 10	V. More About ListBoxes	
	A. The while Loop	
	B. The ++ and -- Operators	
	C. The for Loop	
	D. The do-while Loop	
	E. Using Files for Data Storage	
	F. The OpenFileDialog and SaveFileDialog Controls	
	G. Random Numbers	
	H. The Load Event	
		exam
week 11 and 12	VI. Introduction to Methods	
	A. void Methods	
	CSC 153 June 2016	
	B.Passing Arguments to Methods	
	C.Passing Arguments by Reference	
	D.Value-Returning Methods	
	E.Debugging Methods	
		exam
week 13 and 14	VII.Value Types and Reference Types	
	A.Array Basics	
	B.Working with Files and Arrays	
	C.Passing Arrays as Arguments to Methods	
	D.Some Useful Array Algorithms	
	E.Advanced Algorithms for Sorting and Searching Arrays	
	F.Two-Dimensional Arrays	
	G.Jagged Arrays	
	H.The List Collection	
		exam

MARSHALL UNIVERSITY
Joan C. Edwards School of Medicine

CTS 616 Introduction to Clinical Programming using C#
Marshall University, School of Medicine
Spring 2019

General Information:

Professor: Alfred Cecchetti, PhD, MSc, MSc IS
Phone: 304-691-1585
Email: cecchetti@marshall.edu
Office: 281 TGRI, ECCC 2nd Floor

Lecture: TBA

Course Description:

This course will present C#, a tool that can be used to manipulate data within the clinical database using LINQ to connect the application to the database. The focus is on translational research, which is concerned with bringing bioscience research discoveries into patient care. This course is designed for those who are interested in medical research. Those that are interested in using smartphone application technology to view data will find this of value.

Credit Hours: 3

Course Focus

Translational research is concerned with bringing bioscience research discoveries into patient care. Translational studies aim to accelerate research findings from bench (biological or mathematical using animal as well as human vectors) to bedside and into widespread clinical practice.

Text and Materials:

Lecture notes and PowerPoint

Software:

Visual Studio community edition 2017 or greater (free)

Program Outcomes:

Students in our courses will learn

1. The language of the medical researcher (e.g., ICD9/10, CPT, LOINC, Animal terminologies, etc.),
2. How to manipulate data from the electronic medical record as well as other unstructured sources (animal or human)
3. The close association of programming with security and privacy issues and
4. The core functions necessary to develop novel technologies using a managed programming language

Course Outcomes:

Goal 1: The student will setup the Integrated Development Environment (IDE) along with the tools required to develop medical applications.

Goal 2: Understand the concepts and elementary use of .NET and the .NET library

MARSHALL UNIVERSITY
Joan C. Edwards School of Medicine

Goal 3: Understand the syntax and use of C# as a development tool in a clinical translational environment.

Goal 4: Be able to use C# in desktop and web application development with a focus on security. Have a working knowledge of newer technologies such as LINQ and will learn what a clinical data warehouse is as well as how to access and manipulate data contained within it.

Policies:

Attendance Policy: Attendance is required, notification through email or in the classroom should be at least 24 hours in advance.

Grading policy: All missing assignments are graded with zero, late assignments will have a penalty. If submitted after due date will be considered missing if they are not submitted by the following session (one week).

91% - 100% A
81% - 90 % B
71% - 80 % C
61% - 70 % D
51 % - 60% F

Grade Weights:

1. Exam I, Integrated Development Environment: 10%
2. Homework 2.5%
3. Exam II, Data Structures 30%
4. Homework 2.5%
5. Exam III, Desktop applications, focus on development and security 20%
6. Homework 2.5%
7. Exam IV, Using LINQ to extract data- interfacing with a clinical data warehouse 30%
8. Homework 2.5%

Exams and Assignments: There will be four exams and four homework assignments. Additional homework can be given weekly.

Exam Makeup Policy: Make-up exams will be given only in the case of a documented emergency or with approval from the instructor at least 24 hours prior to the exam. Make-up exams may be different from the original exam.

Classroom and Lab Behavior: The use of mobile devices (making calls, texting, emailing, etc.) is not permitted during class and lab times. You may leave your phone on vibrate or silence mode in order to receive emergency calls.

Academic Integrity: All students are expected to present and represent their own original work and properly credit sources used in preparation of their own original work. Discussion of programming assignments and helping each other with debugging is permissible but copying from others or the internet is not permissible.

MARSHALL UNIVERSITY
Joan C. Edwards School of Medicine

Harassment Policy: The University strongly disapprove and expressly prohibit any form of harassment or discrimination based on race, color, national origin, ancestry, religion, sex, age, sexual orientation, disability, veteran status, marital status or any other characteristic protected by applicable federal, state or local laws.

ADA Policy: If a student wishes to be identified as having a physical, mental, or learning disability, that may or may not require reasonable accommodation(s), he/she must register with the Office of Accessibility. These registered students should identify themselves to their instructors and provide a written statement from the Accessibility Office that indicates the appropriate accommodations. The process of a student self-proclaiming the need for accommodation should occur as early in the semester as possible.

FERPA: The University is committed to fully respecting and protecting the rights of students under the Family Educational Rights and Privacy Act (FERPA). These rights generally include the right to inspect, review and seek amendment to the student's education records and the right to provide written consent before personally identifiable information from education records is disclosed. Under FERPA, students have the right to file a complaint with the US Department of Education concerning alleged failures to comply with FERPA.

Chair: Tracy Christofero | **GC#6: Course Addition**

Request for Graduate Course Addition

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. ***The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.***

College: Medicine | Dept/Division: Department of Clinic | Alpha Designator/Number: CTS 628 | (●) Graded ( ) CR/NC

Contact Person: Dr. Alfred Cecchetti | Phone: 304-691-1585

NEW COURSE DATA:

New Course Title: Introduction to Java Clinical Programming

Alpha Designator/Number: C T S 6 2 8

Title Abbreviation: intro to java cln prog

(Limit of 25 characters and spaces)

Course Catalog Description: (Limit of 30 words)

The goal of this course is to expose clinical informatics students to programming in Java for common problem solving tasks. This course will focus on topics related to object-oriented programming with emphasis on object oriented design and style, classes, recursion, searching and sorting, simple data structures, and graphical user interfaces

Co-requisite(s): None | First Term to be Offered: Summer 2019

Prerequisite(s): None | Credit Hours: 4

Course(s) being deleted in place of this addition (*must submit course deletion form*): None

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head	Date 12/9/18
Registrar 5114011	Date 12/10/18
College Curriculum Chair	Date 12/10/18
Graduate Council Chair	Date 3/2/2019

Request for Graduate Course Addition - Page 2

College: Medicine | Department/Division: Department of Clinical and T | Alpha Designator/Number: CTS 628

Provide complete information regarding the new course addition for each topic listed below. Before routing this form, a complete syllabus also must be attached addressing the items listed on the first page of this form.

1. FACULTY: Identify by name the faculty in your department/division who may teach this course.

Gouthami Kothakapu, MSc CS

2. DUPLICATION: If a question of possible duplication occurs, attach a copy of the correspondence sent to the appropriate department(s) describing the proposal. Enter "***Not Applicable***" if not applicable.

This course is unique since it focuses on Java programming for clinical use cases (e. g., interfacing with clinical data directly from the data warehouse). Current course offerings are not medical research oriented or centered on Java programming used with machine learning (e. g., web scraping for corpus development)

3. REQUIRED COURSE: If this course will be required by another deparment(s), identify it/them by name. Enter "***Not Applicable***" if not applicable.

Not Applicable

4. AGREEMENTS: If there are any agreements required to provide clinical experiences, attach the details and the signed agreement. Enter "***Not Applicable***" if not applicable.

Not Applicable

5. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials to teach this course, attach an estimate of the time and money required to secure these items. (Note: Approval of this form does not imply approval for additional resources.) Enter "***Not Applicable***" if not applicable.

Not Applicable

6. COURSE OBJECTIVES: (May be submitted as a separate document)

Students are expected to learn:
1)The process of problem solving, writing programs, and the software life cycle.
2) Program syntax and error correction.
3) Importance of GUI
4) OOP's concepts
5) Test and Debug Programs
6) Standard Documentation/ Programming style

7. COURSE OUTLINE (May be submitted as a separate document)

Week 1 - Introduction to computer science and history of computing
Week 2 - Operating Systems, Algorithms, Efficiency
Week 3,4 - introduction to Java and OOP's Concepts
Week 5,6 - Advanced Java concepts like class, object, Arrays, Loops, controlled structures
Week 7 - First look at Java (java syntax data types, Predefined classes)
Week 8 - MIDTERM
Week 9 - Inheritance
Week 10 - Other OOP's Concepts - Abstraction, Polymorphism, Encapsulation
Week 11 - Arrays, Searching and Sorting
Week 12 - Constructors
Week 13 - GUI - creating GUI clinical console apps
Week 14 - FINAL

8. SAMPLE TEXT(S) WITH AUTHOR(S) AND PUBLICATION DATES (May be submitted as a separate document)

Text and Materials:
Starting Out with Java: From Control Structures through Objects (6th Edition), 2013, Pearson.
ISBN-13: 978-0-13-395705-1

Software:
The J2SE Development Kit (JDK) Java 8. http://java.sun.com.
NetBeans for Java 8: http://www.netbeans.org

9. EXAMPLE OF INSTRUCTIONAL METHODS (Lecture, lab, internship)

Lecture

Request for Graduate Course Addition - Page 4

10. EXAMPLE EVALUATION METHODS (CHAPTER, MIDTERM, FINAL, PROJECTS, ETC.)

Class Assignments 30%
Mid-terms 30%
Final Exam 30%
Attendance, In-class activity & participation 10%

11. ADDITIONAL GRADUATE REQUIREMENTS IF LISTED AS AN UNDERGRADUATE/GRADUATE COURSE

Not Applicable

12. PROVIDE COMPLETE BIBLIOGRAPHY (May be submitted as a separate document)

None

Request for Graduate Course Addition - Page 5

Please insert in the text box below your course summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:
Course Number and Title:
Catalog Description:
Prerequisites:
First Term Offered:
Credit Hours:

Department: Department of Clinical and Translational Sciences (DCTS)

Course Number and Title: CTS 628 Introduction to Java Clinical Programming

Catalog Description: The goal of this course is to expose clinical informatics students to programming in Java for common clinical and machine learning problem solving tasks. This course will focus on topics related to object-oriented programming with emphasis on object oriented design and style, classes, recursion, searching and sorting, simple data structures, and graphical user interfaces

Prerequisites: None

First Term Offered: Summer 2019

Credit Hours: 4

MARSHALL UNIVERSITY
Joan C. Edwards School of Medicine

CTS 628 Introduction to Java Clinical Programming
Marshall University, School of Medicine
Summer 2019

General Information:

Professor: Gouthami Kothakapu
Phone: 304-691-6816
Email: kothakapu@marshall.edu
Office: 281 TGRI, ECCC 2nd Floor

Lecture: TBA

Course Description: The goal of this course is to expose clinical informatics students to programming in Java for common problem solving tasks. This course will focus on topics related to object-oriented programming with emphasis on object oriented design and style, classes, recursion, searching and sorting, simple data structures, and graphical user interfaces. This class is accompanied with a regular lab hour.

Credit Hours: 4

Course Focus

Translational research is concerned with bringing bioscience research discoveries into patient care. Translational studies aim to accelerate research findings from bench (biological or mathematical using animal as well as human vectors) to bedside and into widespread clinical practice.

Students in our courses will learn 1) the language of the medical researcher (e.g., ICD9/10, CPT, LOINC, Animal terminologies, etc.), 2) how to organize and import data from the electronic medical record as well as other unstructured sources (animal or human) to define the clinical properties of many diseases, 3) the close association of informatics with security and privacy issues and 4) the core functions necessary to develop novel clinical technologies that are used to acquire and analyze translational data in an integrated fashion.

Text and Materials:

Starting Out with Java: From Control Structures through Objects (6th Edition), 2013, Pearson.
ISBN-13: 978-0-13-395705-1

Software:

The J2SE Development Kit (JDK) Java 8. http://java.sun.com.
NetBeans for Java 8: http://www.netbeans.org

Program Outcomes: The goal of this program is to equip physicians in training and other biomedical scientists with information and training they need to translate basic clinical advances into improved patient care that will enhance the quality of life for patients in the Appalachian region, particularly southern West Virginia. Students will receive education in clinical trial design, epidemiology, statistics, informatics, Technology and translational research. Upon successful graduation from this program:

1. Students will be able to lead clinical trials of new drugs and procedures in West Virginia, particularly in its rural regions
2. Students will be strong applicants for positions in schools of medicine and medical centers that have clinical and translational science centers

MARSHALL UNIVERSITY
Joan C. Edwards School of Medicine

Course Outcomes: The following outcomes have been adopted for this course. All outcomes listed below have direct relevance to course material. Upon completion of this course students will be able to learn:

1. The process of problem solving, writing programs, and the software life cycle.
2. Program syntax and error correction.
3. The importance of creating a good user interface.
4. Object Oriented programming techniques.
5. How to test and debug programs
6. How to write good documentation and programming styles that adhere to standards

Topical Outline:

1. Introduction to computer science and history of computing
2. Operating Systems
3. Algorithms, efficiency
4. Introduction to OOP and Java
5. Class/ Object
6. First look at Java (java syntax data types, control structures)
7. String
8. Inheritance
9. File Simple I/O
10. Arrays, Searching and Sorting
11. Recursion and Iterations
12. Loops and Statements
13. Constructors
14. Other OOP's concepts like Encapsulation, Polymorphism
15. GUI
16. Practice on Console Applications

Policies:

Attendance Policy: Attendance is required; notification through email or in the classroom should be at least 24 hours in advance.

Grading policy: All missing assignments are graded with zero, late assignments will have a penalty. If submitted after due date will be considered missing if they are not submitted by the following session (one week).

91% - 100% A
81% - 90 % B
71% - 80 % C
61% - 70 % D
51 % - 60% F

Grade Weights:

Class Assignments 30%
Mid-terms 30%
Final Exam 30%
Attendance, In-class activity & participation 10%

Exams and Assignments: There will be two exams. One during middle of the semester including topics covered earlier. Another exam in the final week includes later topics discussed in the class after midterm. 4-5 assignments can be expected throughout the semester. Additional homework can be given weekly.

MARSHALL UNIVERSITY
Joan C. Edwards School of Medicine

Exam Makeup Policy: Make-up exams will be given only in the case of a documented emergency or with approval from the instructor at least 24 hours prior to the exam. Make-up exams may be different from the original exam.

Classroom and Lab Behavior: The use of mobile devices (making calls, texting, emailing, etc.) is not permitted during class and lab times. You may leave your phone on vibrate or silence mode in order to receive emergency calls.

Academic Integrity: All students are expected to present and represent their own original work and properly credit sources used in preparation of their own original work. Discussion of programming assignments and helping each other with debugging is permissible but copying from others or the internet is not permissible.

Harassment Policy: MU strongly disapprove and expressly prohibit any form of harassment or discrimination based on race, color, national origin, ancestry, religion, sex, age, sexual orientation, disability, veteran status, marital status or any other characteristic protected by applicable federal, state or local laws.

ADA Policy: If a student wishes to be identified as having a physical, mental, or learning disability, that may or may not require reasonable accommodation(s), he/she must register with the Office of Accessibility. These registered students should identify themselves to their instructors and provide a written statement from the Accessibility Office that indicates the appropriate accommodations. The process of a student self-proclaiming the need for accommodation should occur as early in the semester as possible.

FERPA: The University is committed to fully respecting and protecting the rights of students under the Family Educational Rights and Privacy Act (FERPA). These rights generally include the right to inspect, review and seek amendment to the student's education records and the right to provide written consent before personally identifiable information from education records is disclosed. Under FERPA, students have the right to file a complaint with the US Department of Education concerning alleged failures to comply with FERPA.

Chair: Tracy Christofero | **GC#6: Course Addition**

Request for Graduate Course Addition

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. ***The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.***

College: Medicine | Dept/Division: Department of Clinic | Alpha Designator/Number: CTS 637 | (●) Graded ( ) CR/NC

Contact Person: DR. ALFRED CECCHETTI | Phone: 304-691-1585

NEW COURSE DATA:

New Course Title: Introduction to Tableau: From Clinical Data to Clinical Intelligence

Alpha Designator/Number: C T S 6 3 7

Title Abbreviation: I n t r o d u c t i o n t o T a b l e a u

(Limit of 25 characters and spaces)

Course Catalog Description: (Limit of 30 words)

Tableau is a business/clinical intelligence tool that makes it easier to process an ever-increasing stream of clinical information through data visualization, data discovery, visual analytics, dashboards, and visual storytelling. In this course, students will learn the fundamentals of creating interactive visual displays using an industry standard visualization tool using real medical data.

Co-requisite(s): None | First Term to be Offered: Summer 2019

Prerequisite(s): None | Credit Hours: 3

Course(s) being deleted in place of this addition (*must submit course deletion form*): None

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head	Date 12/9/18
Registrar	Date 12/10/18
College Curriculum Chair	Date 12/10/18
Graduate Council Chair	Date 3/2/2019

Request for Graduate Course Addition - Page 2

College: Medicine | Department/Division: Department of Clinical and T | Alpha Designator/Number: CTS 637

Provide complete information regarding the new course addition for each topic listed below. Before routing this form, a complete syllabus also must be attached addressing the items listed on the first page of this form.

1. FACULTY: Identify by name the faculty in your department/division who may teach this course.

Niharika Bhardwaj, MBBS, MSHI

2. DUPLICATION: If a question of possible duplication occurs, attach a copy of the correspondence sent to the appropriate department(s) describing the proposal. Enter "***Not Applicable***" if not applicable.

This course unique in the following ways:

1. Focused on visual analytics of synthetic clinical data derived from real local clinical data using Tableau
2. Provides knowledge of how to perform advanced statistical analysis through use of R in Tableau
3. Emphasis on Clinical aspect of healthcare, not business.

Other courses are broader and are more business-oriented.

3. REQUIRED COURSE: If this course will be required by another deparment(s), identify it/them by name. Enter "***Not Applicable***" if not applicable.

Not Applicable

4. AGREEMENTS: If there are any agreements required to provide clinical experiences, attach the details and the signed agreement. Enter "***Not Applicable***" if not applicable.

Not Applicable

5. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials to teach this course, attach an estimate of the time and money required to secure these items. (Note: Approval of this form does not imply approval for additional resources.) Enter "***Not Applicable***" if not applicable.

Not Applicable

6. COURSE OBJECTIVES: (May be submitted as a separate document)

After completing this course, students should have a good understanding of the basics of Tableau. The student should be able to:
1. Know how to ask the "right" questions that make clinical sense
2. Understand data visualization principles, methods, and techniques
3. Design and implement wide variety of data visualizations
4. Identify which visualizations are appropriate for various types of data and for different goals
5. Apply an understanding of human perceptual and cognitive capabilities to the design of data visualizations to help users understand data

7. COURSE OUTLINE (May be submitted as a separate document)

Module 1 - Introduction to Tableau
Module 2 - Fundamentals of Visualization and Data Modeling
Module 3 - Data Visualization Best Practices and Not-So-Best Practices
Assignment/Quiz 1
Module 4 - The Use of Color in Data Visualization and Dashboard Design
Module 5 - Developing worksheets and dashboards
Module 6 - Interactive Data Visualization
Assignment/Quiz 2
Module 7 - Mapping Data
Module 8 - Tableau and the Data Warehouse
Module 9 - Tableau and Machine Learning with Model Building
Final Project Presentations

8. SAMPLE TEXT(S) WITH AUTHOR(S) AND PUBLICATION DATES (May be submitted as a separate document)

No textbooks required
Laptops with Tableau installed are required. Tableau Academic Edition will be provided free-of-charge

9. EXAMPLE OF INSTRUCTIONAL METHODS (Lecture, lab, internship)

Lecture

Request for Graduate Course Addition - Page 4

10. EXAMPLE EVALUATION METHODS (CHAPTER, MIDTERM, FINAL, PROJECTS, ETC.)

Assignments (150 Points), Quizzes (100 Points), Final Project(250 Points)

11. ADDITIONAL GRADUATE REQUIREMENTS IF LISTED AS AN UNDERGRADUATE/GRADUATE COURSE

None

12. PROVIDE COMPLETE BIBLIOGRAPHY (May be submitted as a separate document)

https://www.tableau.com/

Request for Graduate Course Addition - Page 5

Please insert in the text box below your course summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:
Course Number and Title:
Catalog Description:
Prerequisites:
First Term Offered:
Credit Hours:

Department: Department of Clinical and Translational Sciences (DCTS)

Course Number and Title: CTS 637 - Introduction to Tableau: From Clinical Data to Clinical Intelligence

Catalog Description: There is an ever-increasing pool of clinical data flowing in from a wide variety of sources ranging from electronic health records, disease registries, surveys, smart homes, wearable devices etc. Tableau is a business/clinical intelligence tool that makes it easier to process this massive stream of information through data visualization, data discovery, visual analytics, dashboards, and visual storytelling. In this course, students will learn the fundamentals of creating interactive visual displays using an industry standard visualization tool using real medical data.

Prerequisites: None

First Term Offered: Summer 2019

Credit Hours: 3

CTS 637 Introduction to Tableau: From Clinical Data to Clinical Intelligence
Joan C. Edwards Marshall University School of Medicine
Summer 2019

General Information:

Professor: Niharika Bhardwaj
Phone: 304-691-5397
Email: bhardwaj1@marshall.edu
Office: 281 TGRI, ECCC 2nd Floor

Office Hours: No set office hours. Please contact faculty to arrange a time to meet.
Lecture: TBA

Course Description: There is an ever-increasing pool of clinical data flowing in from a wide variety of sources ranging from electronic health records, disease registries, surveys, smart homes, wearable devices etc. Tableau is a business/clinical intelligence tool that makes it easier to process this massive stream of information through data visualization, data discovery, visual analytics, dashboards, and visual storytelling. In this course, students will learn the fundamentals of creating interactive visual displays using an industry standard visualization tool using real medical data.

Pre-requisites: None

Credit Hours: 3

Text and Material: No textbooks required.

Software: Laptops with Tableau installed are required. Tableau Academic Edition will be provided free-of-charge.

Course Objectives:
After completing this course, students should have a good understanding of the basics of Tableau. The student should be able to:

1. Know how to ask the "right" questions that make clinical sense
2. Understand data visualization principles, methods, and techniques
3. Design and implement wide variety of data visualizations
4. Identify which visualizations are appropriate for various types of data and for different goals
5. Apply an understanding of human perceptual and cognitive capabilities to the design of data visualizations to help users understand data

Course Outcomes:

Student Learning Outcomes	How Outcome Will Be Practiced	How Outcome Will Be Assessed
Know how to ask the "right" questions that make clinical sense	In-class discussion	Final Project
Understand data visualization principles, methods, and techniques	In-class discussion	Assignment/Quiz & Final Project
Design and implement wide variety of data visualizations	In-class discussion	Assignment/Quiz & Final Project
Identify which visualizations are appropriate for various types of data and for different goals	In-class discussion	Assignment/Quiz & Final Project
Apply an understanding of human perceptual and cognitive capabilities to the design of data visualizations to help users understand data	In-class discussion	Final Project

Course Syllabus:

Topic
Module 1 - Introduction to Tableau
Module 2 - Fundamentals of Visualization and Data Modeling
Module 3 - Data Visualization Best Practices and Not-So-Best Practices
Assignment/Quiz 1
Module 4 - The Use of Color in Data Visualization and Dashboard Design
Module 5 - Developing worksheets and dashboards
Module 6 - Interactive Data Visualization
Assignment/Quiz 2
Module 7 - Mapping Data
Module 8 - Tableau and the Data Warehouse
Module 9 - Tableau and Machine Learning with Model Building
Final Project Presentations

Grades:
Student performance is based on the scores achieved on assignments and the final project. The point totals for each assignment and final project are as follows:

Assignment/Quiz 1	150 points
Assignment/Quiz 2	100 points
Final Project	250 points

Final letter grades will be assigned as follows based upon the average percentage obtained on the assignments, quizzes and the final project. Grades will be posted on MU Online as soon as reasonably possible after each exam.

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	Below 60%

Class Policies:
By enrolling in this course, you agree to abide by the University policies listed below. Please read the full text of each policy by going to http://www.marshall.edu/academic-affairs and clicking on "Marshall University Policies".

Academic Dishonesty
Academic dishonesty will not be tolerated. Policy AA-12 defines academic dishonesty and describes the sanctions associated with it.

Inclement Weather
Policy GA-9 describes the policy on weather-related and/or emergency closings and delays. As this is an afternoon class, we will not be affected by delays. To find out if the University is closed, please call Audix at 696-6245.

Students with Disabilities Policy
Students with disabilities are required to prepare a notice either from the Help Center, Myers Hall, or Sandra Clements, PH 117, before a special accommodation can be honored. The link describing this policy is http://www.marshall.edu/disabled.

University Computing Services Acceptable Use Policy MUBOG Policy IT-1 explains this policy (http://www.marshall.edu/president/board/policies.html).

Cell Phone Use
Cell phone use, including texting, will not be tolerated in the class, unless authorized by the instructor. If special circumstances exist such that a student needs to be in communication with family members or friends during a class, please inform the instructor before the class begins.

Permission will be granted on a case-by-case basis and at the sole discretion of the instructor. If a student persists in using cell phones, including texting, after they have been asked to stop, the student will be removed from the class.

Chair: Tracy Christofero | **GC#6: Course Addition**

Request for Graduate Course Addition

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. ***The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.***

College: Medicine | Dept/Division: Department of Clinic | Alpha Designator/Number: CTS 645 | (●) Graded ( ) CR/NC

Contact Person: DR. ALFRED CECCHETTI | Phone: 304-691-1585

NEW COURSE DATA:

New Course Title: Navigating Health IT Systems for Quality Data

Alpha Designator/Number: C T S 6 4 5

Title Abbreviation: N a v i g a t i n g H e a l t h I T

(Limit of 25 characters and spaces)

Course Catalog Description: (Limit of 30 words)

The quality of healthcare data is critical to clinical & translational research and medical practice. Getting the right data is difficult without a basic understanding of health information systems (HIS) and medical classification standards. This course provides an overview of these HIS and standards in the healthcare industry and enables gathering and use of HIS data effectively.

Co-requisite(s): None | First Term to be Offered: Summer 2019

Prerequisite(s): None | Credit Hours: 3

Course(s) being deleted in place of this addition (*must submit course deletion form*): None

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head	Date 12/9/18
Registrar 511407	Date 12/10/18
College Curriculum Chair	Date 12/10/18
Graduate Council Chair	Date 3/2/2019

Request for Graduate Course Addition - Page 2

College: Medicine Department/Division: Department of Clinical and T Alpha Designator/Number: CTS 645

Provide complete information regarding the new course addition for each topic listed below. Before routing this form, a complete syllabus also must be attached addressing the items listed on the first page of this form.

1. FACULTY: Identify by name the faculty in your department/division who may teach this course.

Niharika Bhardwaj, MBBS, MSHI

2. DUPLICATION: If a question of possible duplication occurs, attach a copy of the correspondence sent to the appropriate department(s) describing the proposal. Enter "***Not Applicable***" if not applicable.

This course provides practical skills that help the student extract quality data from complex health IT systems to answer research (clinical and translational) questions in an informed way through an in-depth understanding of the flow of the data and the different standards and classification systems used to store it into different Health IT systems from a clinical and billing perspective. Although courses exist that touch upon healthcare standards, classification systems, and structure/design of Health IT systems, none discuss healthcare data flow, standards and classification systems to extract quality data from a practical perspective via use case demonstrations.

3. REQUIRED COURSE: If this course will be required by another deparment(s), identify it/them by name. Enter "***Not Applicable***" if not applicable.

Not Applicable

4. AGREEMENTS: If there are any agreements required to provide clinical experiences, attach the details and the signed agreement. Enter "***Not Applicable***" if not applicable.

Not Applicable

5. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials to teach this course, attach an estimate of the time and money required to secure these items. (Note: Approval of this form does not imply approval for additional resources.) Enter "***Not Applicable***" if not applicable.

Not Applicable

6. COURSE OBJECTIVES: (May be submitted as a separate document)

After completing this course, students should have a good understanding of the basics of Tableau. The student should be able to:
1. Demonstrate basic knowledge and understanding of Health IT systems and their role in the healthcare system.
2. Demonstrate knowledge of the different types of health information generated and their location.
3. Understand the importance of standards and data quality.
4. Apply knowledge of the Health information systems standards (such as ICD, CPT, etc.) to extract quality data for research/clinical purposes.
5. Improve their problem-solving and critical thinking skills through the use cases discussed in class.

7. COURSE OUTLINE (May be submitted as a separate document)

Module 1 - Introduction to Healthcare System
Module 2 - Introduction to Healthcare Information
Module 3 - Healthcare Data Quality
Assignment/Quiz 1
Module 4 - Why do we need Standards?
Module 5 – Types of Standards
Module 6 – Terminology Standards
Assignment/Quiz 2
Module 7 - Clinical Quality Measures
Module 8 – EHR's and billing system practical demonstration
Module 9 - Real-world Applications and Use cases
Final Project Presentations

8. SAMPLE TEXT(S) WITH AUTHOR(S) AND PUBLICATION DATES (May be submitted as a separate document)

No textbooks required

9. EXAMPLE OF INSTRUCTIONAL METHODS (Lecture, lab, internship)

Lecture

Request for Graduate Course Addition - Page 4

10. EXAMPLE EVALUATION METHODS (CHAPTER, MIDTERM, FINAL, PROJECTS, ETC.)

Assignments (150 Points), Quizzes (100 Points), Final Project(250 Points)

11. ADDITIONAL GRADUATE REQUIREMENTS IF LISTED AS AN UNDERGRADUATE/GRADUATE COURSE

None

12. PROVIDE COMPLETE BIBLIOGRAPHY (May be submitted as a separate document)

None

Request for Graduate Course Addition - Page 5

Please insert in the text box below your course summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:
Course Number and Title:
Catalog Description:
Prerequisites:
First Term Offered:
Credit Hours:

Department: Department of Clinical and Translational Sciences (DCTS)

Course Number and Title: CTS 645 - Navigating Health IT Systems for Quality Data

Catalog Description: The quality of healthcare data – i.e. accuracy, relevance to use case and completeness – is critical to clinical & translational research and medical practice. Pulling the right data is difficult, if not impossible, without a basic understanding of health information systems (HIS) and medical classification standards. This course provides an overview of these HIS and standards in the healthcare industry and enables gathering and use of HIS data effectively.

Prerequisites: None

First Term Offered: Summer 2019

Credit Hours: 3

CTS 645 Navigating Health IT Systems for Quality Data Joan C.
Edwards Marshall University School of Medicine
Summer 2019

General Information:

Professor: Niharika Bhardwaj
Phone: 304-691-5397
Email: bhardwaj1@marshall.edu
Office: 281 TGRI, ECCC 2nd Floor
Office Hours: No set office hours. Please contact faculty to arrange a time to meet.
Lecture: TBA

Course Description: The quality of healthcare data – i.e. accuracy, relevance to use case and completeness – is critical to clinical & translational research and medical practice. Pulling the right data is difficult, if not impossible, without a basic understanding of health information systems (HIS) and medical classification standards. This course provides an overview of these HIS and standards in the healthcare industry and enables gathering and use of HIS data effectively.

Pre-requisites: None

Credit Hours: 3

Text and Material: No textbooks required.

Course Objectives:
After completing this course, students should have a good understanding of the basics of Tableau. The student should be able to:

1. Demonstrate basic knowledge and understanding of Health IT systems and their role in the healthcare system.
2. Demonstrate knowledge of the different types of health information generated and their location.
3. Understand the importance of standards and data quality.
4. Apply knowledge of the Health information systems standards (such as ICD, CPT, etc.) to extract quality data for research/clinical purposes.
5. Improve their problem-solving and critical thinking skills through the use cases discussed in class.

Course Outcomes:

Student Learning Outcomes	How Outcome Will Be Practiced	How Outcome Will Be Assessed
Demonstrate basic knowledge and understanding of Health IT systems and their role in the healthcare system.	In-class discussion	Assignment/Quiz & Final Project
Demonstrate knowledge of the different types of health information generated and their location.	In-class discussion	Assignment/Quiz & Final Project
Understand the importance of standards and data quality	In-class discussion	Assignment/Quiz & Final Project
Apply knowledge of the Health information systems standards (such as ICD, CPT, etc.) to obtain relevant data for research/clinical	In-class discussion	Assignment/Quiz & Final Project
Hone their problem-solving and critical thinking skills through the case studies discussed in class	In-class discussion	Final Project

Course Syllabus:

Topic
Module 1 - Introduction to Healthcare System
Module 2 - Introduction to Healthcare Information
Module 3 - Healthcare Data Quality
Assignment/Quiz 1
Module 4 - Why do we need Standards?
Module 5 – Types of Standards
Module 6 – Terminology Standards
Assignment/Quiz 2
Module 7 - Clinical Quality Measures
Module 8 – EHR's and billing system practical demonstration
Module 9 - Real-world Applications and Use cases
Final Project Presentations

Grades:
Student performance is based on the scores achieved on assignments and the final project. The point totals for each assignment and final project are as follows:

Assignment/Quiz 1	150 points
Assignment/Quiz 2	100 points
Final Project	250 points

Final letter grades will be assigned as follows based upon the average percentage obtained on the assignments, quizzes and the final project. Grades will be posted on MU Online as soon as reasonably possible after each exam.

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	Below 60%

Class Policies:
By enrolling in this course, you agree to abide by the University policies listed below. Please read the full text of each policy by going to http://www.marshall.edu/academic-affairs and clicking on "Marshall University Policies".

Academic Dishonesty
Academic dishonesty will not be tolerated. Policy AA-12 defines academic dishonesty and describes the sanctions associated with it.

Inclement Weather
Policy GA-9 describes the policy on weather-related and/or emergency closings and delays. As this is an afternoon class, we will not be affected by delays. To find out if the University is closed, please call Audix at 696-6245.

Students with Disabilities Policy
Students with disabilities are required to prepare a notice either from the Help Center, Myers Hall, or Sandra Clements, PH 117, before a special accommodation can be honored. The link describing this policy is http://www.marshall.edu/disabled.

University Computing Services Acceptable Use Policy MUBOG Policy IT-1 explains this policy (http://www.marshall.edu/president/board/policies.html).

Cell Phone Use
Cell phone use, including texting, will not be tolerated in the class, unless authorized by the instructor. If special circumstances exist such that a student needs to be in communication with family members or friends during a class, please inform the instructor before the class begins.

Permission will be granted on a case-by-case basis and at the sole discretion of the instructor. If a student persists in using cell phones, including texting, after they have been asked to stop, the student will be removed from the class.

Request for Graduate Addition, Deletion, or Change of a Major or Degree

NOTE: Before you submit a request for a new Major or Degree, you must submit an INTENT TO PLAN form. Only after the INTENT TO PLAN goes through the approval process are you ready to submit this request for a new Major or Degree. For detailed information on new programs please see: http://wvhepcdoc.wvnet.edu/resources/133-11.pdf.

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one PDF copy without signatures to the Graduate Council Chair.
3. ***The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.***

College: School of Medicine

Dept/Division: Physician Assistant Program

Contact Person: Ginger Boles, MS PA/C

Phone: 304-629-1341

Degree Program: Master of Medical Science Physician Assistant

CIP 51.0912

Check action requested: ☒ Addition ☐ Deletion ☐ Change

GB 1.29.19

Effective Term/Year: Fall 20 ☐ Spring 20 21 ☒ Summer 20 ☐

Information on the following pages must be completed before signatures are obtained.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head	Date 1/30/19
College Curriculum Chair	Date 1/28/19
College Dean	Date 1/28/19
Graduate Council Chair	Date 3/2/2019
Provost/VP Academic Affairs	Date
Presidential Approval	Date
Board of Governors Approval	Date

Request for Graduate Addition, Deletion, or Change of a Major or Degree-Page 2

Please provide a rationale for addition, deletion, change: (May attach separate page if needed)

See attached

Please describe any changes in curriculum:
List course number, title, credit hours. Note whether each course is required or optional. Enter NONE if no change. (May attach separate page if needed)
See Attached

1. ADDITIONAL RESOURCE REQUIREMENTS: If your program requires additional faculty, equipment or specialized materials to ADD or CHANGE this major or degree, attach an estimate of the time and money required to secure these items.
NOTE: Approval of this form does not imply approval for additional resources. Enter NONE if not applicable.

See Attached

2. NON-DUPLICATION: If a question of possible duplication occurs, attach a copy of the correspondence sent to the appropriate department(s) describing the request and any response received from them. Enter NONE if not applicable.

See Attached

For catalog changes as a result of the above actions, please fill in the following pages.

Request for Graduate Addition, Deletion, or Change of a Major or Degree-Page 3

3. *Current* Catalog Description

Insert the *Current* Catalog Description and page number from the latest catalog for entries you would like to change. (May attach separate page if needed)

N/A This is a new program.

4. *Edits* to the Current Description

Attach a PDF copy of the current catalog description prepared in MS WORD with strikethroughs to mark proposed deletions and use the highlight function to indicate proposed new text.

Request for Graduate Addition, Deletion, or Change of a Major or Degree-Page 4

5. *New* Catalog Description

Insert a 'clean' copy of your proposed description, i.e., no strikethroughs or highlighting included. This should be what you are proposing for the new description. (May attach separate page if needed)

See attached

Request for Graduate Addition, Deletion, or Change of a Major or Degree-Page 5

Please insert in the text box below your change summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings):

Department:
Major or Degree:
Type of Change: *(addition, deletion, change)*
Rationale:

See Attached

Graduate addition of major or degree

Rationale for addition, deletion, change

The Joan C. Edwards School of Medicine submitted an Intent to Plan document to the Graduate Council for a new Physician Assistant (PA) Program in the spring of 2018. The Board of Governors of Marshall University approved that plan on April 25, 2018. We now provide a formal plan for the new degree for your review.

The Joan C. Edwards School of Medicine in collaboration with Marshall Health developed an academic program that meets the requirements as set forth for Provisional Accreditation, per the fourth edition of the Standards for PA education by the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA). The Marshall University Program will be a 28-month program with rigorous academic courses and challenging clinical rotations.

Initial application has been made to the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA), and a site visit is scheduled on the campus of Marshall University March 2-3, 2020. Per their website, the ARC-PA is the accrediting agency that "protects the interests of the public and PA profession by defining the standards for PA education and evaluating PA education programs within the territorial United States to ensure their compliance with those standards". The ARC-PA "encourages excellence in PA education through its accreditation process by establishing and maintain standards of quality for educational programs". The ARC-PA process is peer review and requires extensive documentation in the form of an application, reports due on a timely basis, and periodic site visits to clarify, verify and validate information and compliance with ARC PA standards. This evaluation ensures the quality of programs and fosters a rigorous self-study process to facilitate program improvement.

As a part of our application and review, we must document the creation of this degree program for the ARC-PA. This document will provide the information to the Graduate Council and the Marshall University Board of Governors as required for the approval of a new program. Although we are asking for approval of the program now, the first cohort of students will not begin until the Spring term of 2021. Between the approval of this program and its start, we will provide the Graduate Council all the materials for the creation of the program's new courses.

Pending a successful site visit with the ARC–PA, students will matriculate in January of 2021 with the first class graduating in May of 2023. The program continues to work on curriculum development complaint with ARC –PA standards and complete syllabi that meet Marshall University guidelines as well as ARC requirements are targeted to be complete in June of 2019 with submission to the Graduate Council in September of 2019.

There is national demand for PAs. According to the Bureau of Labor Statistics, employment of PAs will grow 37 percent in the next eight years. There is a high demand for PAs because they are integrated into all healthcare disciplines and settings, there is a shortage of physicians, and the cost-effectiveness of PA services. Having a PA program affiliated with the School of Medicine will be invaluable as we move forward. When a team approach of healthcare professionals is utilized, a wider range of services can be offered and more patients will be affected in the region, state and nationally. On January 8, 2019 *US*

News and World Report released a study that ranked Physician Assistants as the number one job in healthcare and the number three best job overall.

According to data from the Centralized Application Service for Physician Assistants (CASPA) of 25,593 applicants in the year 2016-2017, only 8,206 matriculate into programs. The average program's matriculation rate is 6.2%. On the Alderson Broaddus University (ab.edu) webpage, they advertised that their maximum class size is 36, while they have 2,000 applicants each year. For their latest class, the University of Charleston had 1,001 CASPA applications and matriculated 25 (their total class size is slightly larger due to a pipeline program). Class sizes for PA programs in this state are small, therefore many qualified applicants are turned away. Marshall University is poised to offer a competitive program, within a School of Medicine which will provide advantages for academic and clinical training.

Ms. Boles, the Director of the Physician Assistant Program, met with the Provost, Dr. Jaime Taylor on December 13, 2018 to answer questions, and discuss the Physician Assistant Program. She also met with Mr. Michael McGuffey, Senior VP for Institutional Research /Special Assistant to the President and Mr. Mark Robinson, Senior VP for Finance/ CFO. Ms. Boles has also met with Dr. Steve Wilson, Medical Director for the program and Mr. Matt Straub, CFO with Marshall Health. She has had weekly meetings with Dr. Miller, Vice Dean for Medical Education, Joan C Edwards School of Medicine.

Recruitment

Recruitment will be done in a multitude of ways

- Ms. Boles has been working with the School of Medicine in a pipeline program, and speaking to high school students regarding the profession and program at Marshall University
- A Pre-Physician Assistant club is being formed in the undergraduate arena at Marshall University.
- The PA program at Marshall University will be listed on the CASPA site, as well as the Physician Assistant Education Association (PAEA) web site, and the ARC –PA web site.
- A web page will be developed for the program citing admission requirements, course expectations and admission processes.
- Representation will occur at college graduate fairs
- Links will be on the Marshall University website as well as the Marshall University School of Medicine website for information on the PA program
- Open houses will be held for interested applicants in the Physician Assistant Program

Changes in Curriculum

All courses are new and are required in the curriculum. As noted previously, the program will submit course approval materials during the fall of 2019 for review.

First Semester (Spring)

PAS 500	Foundations of Medicine 7 Credit hours
PAS 520	Gross Anatomy for the PA 4 credit hours (includes lab)
PAS 530	Pharmacology Principles 3 credit hours
PAS 550	History and Physical Exam 3 credit hours (includes lab)

Second Semester (Summer)

PAS 600	Clinical Medicine 1 6 credit hours
PAS 601	Pharmacology for the PA I 2 credit hours
PAS 602	Clinical Concepts 1 2 credit hours
PAS 603	Clinical Assessment 1 2 credit hours
PAS 604	Testing and Procedures 1 2 credit hours
PAS 605	PA's in Health Care 2 credit hours
PAS 606	Evidence Based Practice 2 credit hours

Third Semester (Fall)

PAS 610	Clinical Medicine II – 6 credit hours
PAS 611	Pharmacology for the PA II 2 credit hours
PAS 612	Clinical Concepts III – 2 credit hours
PAS 613	Clinical Assessment II 2 credit hours
PAS 614	Testing and Procedures II 2 credit hours
PAS 615	Health Policy for the PA 2 credit hours
PAS 616	Clinical Specialties 1 3 credit hours

Fourth Semester (Spring)

PAS 620	Clinical Medicine III 6 credit hours
PAS 621	Pharmacology for the PA III 2 credit hours
PAS 622	Clinical Concepts III – 2 credit hours
PAS 623	Clinical Assessment III 2 credit hours
PAS 624	Testing and Procedures III 2 credit hours
PAS 625	PA Professional Practice 2 credit hours
PAS 626	Clinical Specialties II 3 credit hours
PAS 627	Psychiatry for the PA 2 credit hours

Clinical Year

PAS 650	Primary Care I 4 credit hours
PAS 651	Primary Care II 4 credit hours
PAS 652	Psychiatry 4 credit hours
PAS 653	Internal Medicine I 4 credit hours
PAS 654	Internal Medicine Subspecialty 4 credit hours
PAS 655	Women's Health 4 credit hours
PAS 656	Pediatrics 4 credit hours
PAS 657	General Surgery 4 credit hours
PAS 658	Emergency Medicine 4 credit hours
PAS 659	Orthopedics 4 credit hours
PAS 660	Clinical Elective 4 h credit hours
PAS 690	Senior Seminar 3 credit hours

Additional Resource Requirements

Physician Assistant programs are overseen by an accrediting body, the ARC-PA. This body mandates that each program have a Program Director, Medical Director, at least three full time faculty positions -- two of which must be Physician Assistants that are certified (the other must also be eligible to teach medical courses in a Master Degree PA program) and at least one full time administrative assistant. These are not meant to be all encompassing numbers, rather they are the minimum requirements to meet the standards. The MU PA Program will utilize some faculty already present in the medical school for some clinical medicine courses and basic science instruction. Ms. Boles has weekly meetings with Dr. Bobby Miller, Vice Dean for Medical Education, Joan C. Edwards School of Medicine. Funding is overseen by the School of Medicine/ Marshall Health.

All new faculty will have 12-month teaching appointments. Faculty will be governed by the Board of Governors Policy and held to the Graduate College's criteria for Graduate Faculty status. School of Medicine faculty will be involved in teaching courses in the Physician Assistant Program. Dr Nitin Puri will be teaching a portion of the Clinical Medicine Courses. Other School of Medicine educators teaching in the pre-clerkship curriculum of the MD program have been identified as potential leaders and instructors in the foundational sciences and medicine courses. These include: Dr's, Norton, Serrat, Delidow, Egleton, Salisbury, Sodhi, Green, Aldridge, Grover, Primerano, Sollars, Koc, and Mangariua.

Non – Duplication

Please see attached documents verifying non duplication in the School of Medicine, the School of Physical Therapy and the College of Health Professions.

Physician Assistant Programs are overseen by an accrediting body, the ARC-PA. This body mandates curriculum and instruction through the "B standards" of the ARC-PA Accreditation Standards, fourth edition. The curriculum is specifically aimed at training students to graduate and pass the national certifying exam for physician assistants through the NCCPA. The curriculum is a professional curriculum and specific instructional objectives and learning outcomes are mandated elements of the curriculum. Because of the nature of NCCPA's objectives and outcomes, we believe our courses will present a unique and discipline-specific perspective of the topics covered thus reducing the chance of duplication. Ms. Boles has met with Dr. Miller, the Vice Dean for Medical Education weekly. She has also met with Dr. Rob Stanton from the School of Pharmacy. Due to the sequential nature of the program, duplicate courses are not taught anywhere else.

Program Description

The Physician Assistant Program in the Marshall University Joan C. Edwards School of Medicine offers a Master of Medical Science Physician Assistant Degree. This program will prepare students to practice as Physician Assistants in primary and specialty care across the life span to patients in culturally diverse and rural settings. The program will provide students with the tools and skills to support lifelong learning, to apply evidence based medicine in practice and to work in inter-professional teams.

Admission Requirements

Students must meet all minimum admission requirements for the Graduate College of Marshall University. Please refer to their webpage at https://www.marshall.edu/graduate/select-your-degree-or-certificate-program/how-to-apply-for-admission/

In addition to the minimum requirements above, applicants must meet the following:

Pre-requisite classes – all prerequisites should have been taken within the last 10 years.

1. General Chemistry with lab -- 8 credit hours
2. Statistics --- 3 credit hours
3. Anatomy with lab -- 4 credit hours
4. Physiology with lab -- 4 credit hours
5. Organic 1 with lab or Biochemistry 4 credit hours
6. Microbiology with lab 3 credit hours
7. Medical Terminology -- one semester (1 credit hour - 3 credit hours)
8. Psychology – 3 credit hours
9. College Algebra -- 3 credit hours (Can be replaced with Pre -Calculus or Calculus)

Bachelor's degree from a regionally accredited college or University

PA shadowing --- some PA shadowing is encouraged, with the goal of understanding the role of a Physician Assistant. If an applicant is invited for an interview, the applicant will be expected to discuss briefly the role of a PA. Hours of shadowing should be documented on the application.

Required GPA

Required GPA overall 3.0/ 4.0 scale on all undergraduate, post-baccalaureate, and graduate courses taken, both science and non-science, as calculated by CASPA.

Required GPA for Admission prerequisites 3.0/4.0 scale as calculated by the program.

Notes Regarding GPA:

1) Marshall University will calculate GPAs for international applicants.
2) Anatomy with lab and Physiology with lab may be replaced with Anatomy and Physiology 1 and 2 with labs ---- for a total of 8 hours.
3) No AP credit will be accepted for any pre-requisite courses.
4) All prerequisites must have an assigned grade and not Pass/Fail.
5) Online or virtual labs will not be accepted as prerequisite courses.

6) Required Science GPA 3.0/4.0 Scale on all courses with subject codes of Biology/Zoology, Chemistry (Inorganic, Organic, and Biochemistry), Physics, and other science, as calculated by CASPA.

Valid GRE is required (less than five years old) / MCAT can be substituted.

Marshall University will utilize the Centralized Application Service for Physician Assistant Programs (CASPA) application for all applications. A personal statement and three letters of recommendation will be required for the CASPA application.

#Applicants who are WV residents will be given additional points in the admission rubric

#Applicants who have obtained or will obtain by matriculation an undergraduate degree from MU will be given an interview as long as they meet basic admission requirements.

Students must have health insurance by the time of matriculation.

Basic computer skills to include use of email and to conduct web based and electronic searches.

Admission is selective and will be on a rolling admission cycle.

Students may apply prior to obtaining all pre-requisite courses, or obtaining their baccalaureate degree. Students who have not completed all prerequisites, the baccalaureate degree, or both will be conditionally admitted pending completion of admission requirements. Students must complete all admission requirements prior to matriculation.

Duration of Degree Program

This program requires 28 months of continuous and full-time enrollment for a total of 122 credit hours. There is NO part-time option.

Entry term

Matriculation will occur in January (Spring Semester)

Degree Requirements

Plan of Study

First Semester (Spring)		
PAS 500	Foundations of Medicine	7 hours
PAS 520	Gross Anatomy for the PA	4 hours (includes lab)
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PAS 601	Pharmacology for the PA I	2 hours
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PAS 658	Emergency Medicine	4 hours
PAS 659	Orthopedics	4 hours
PAS 660	Clinical Elective	4 hours
PAS 690	Senior Seminar	3 hours

Coursework will include rigorous academic study, laboratory and clinical methods of instruction. This degree requires satisfactory completion of all courses in this field of study. In addition to completing the University degree requirements, all students in the PA program must:

- maintain a GPA of 3.0 on a 4.0 grading scale (There is a complete remediation policy, as well as progression standards, which will be outlined in the policies and procedures for the PA program) and
- be recommended for graduation by the Physician Assistant Student Progress Committee (Student Progress Committee will be outlined clearly in the PA Policy and Procedures handbook. Ms. Boles has met with attorney, Jendonnae Houdyschell who has agreed to review handbook for accuracy and compliance with local, state, and federal guidelines)

Certification:

Physician Assistants must graduate from an accredited program to be eligible for the National Commission on Certification of Physician Assistants (NCCPA) examination. The NCCPA exam is the only certifying exam for PA's in the United States. All US States, DC and territories rely on the NCCPA examination for licensure and regulation of PA's. Per the NCCPA website "Individuals who have never been certified and who graduated from an ARC-PA accredited physician assistant program on or after January 1, 2003, will be eligible to take PANCE for up to six years after completing the requirements for graduation from that program. During that six-year period, PANCE may be taken a total of six times. When either the six attempts or six years are exhausted, whichever occurs sooner, the individual loses eligibility to take PANCE. The only way to establish new eligibility is to complete an unabridged ARC-PA accredited physician assistant educational program again." For further information on certification please visit the NCCPA website at https://www.nccpa.net/

Transfer Credit:

Due to the sequential and concurrent nature of coursework in the Physician Assistant Program, transfer credits are not accepted.

Accreditation

Marshall University has applied for Accreditation - Provisional from the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA). Marshall University anticipates matriculating its first class in January of 2021, pending achieving Accreditation - Provisional status at the June 2020 ARC-PA meeting. Accreditation - Provisional is an accreditation status granted when the plans and resource allocation, if fully implemented as planned, of a proposed program that has not yet enrolled students appear to demonstrate the program's ability to meet the ARC-PA Standards or when a program holding accreditation-provisional status appears to demonstrate continued progress in complying with the Standards as it prepares for the graduation of the first class (cohort) of students.

Department: School of Medicine

New Major or Degree: Physician Assistant

Credit Hours: 122 including classroom, laboratory, and clinical hours

Rationale:

The Joan C. Edwards School of Medicine submitted an Intent to Plan document to the Graduate Council for a new Physician Assistant (PA) Program in the spring of 2018. The Board of Governors of Marshall University approved that plan on April 25, 2018. We now provide a formal plan for the new degree for your review.

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COVER SHEET INTENT TO PLAN

Chair: Tracy Christofero | GC#3: Intent to Plan

Graduate Intent to Plan--Major or Degree

NOTE: This "Intent to Plan" form must be submitted and go through the approval process BEFORE you submit the form titled, "Request for Graduate Addition, Deletion or Change of a Major or Degree." For detailed information on new programs please see: http://wvhepcdoc.wvnet.edu/resources/133-11.pdf.

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one PDF copy without signatures to the Graduate Council Chair. If attachments are included, please merge into a single file.
3. ***The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.***

College: School of Medicine

Dept/Division: N/A

Contact Person: Stephen L. Wilson

Phone: 304-939-1108

New Degree Program Master of Medical Science Physician Assistant

Effective Term/Year Fall 20 ☐ Spring 20 20 ☒ Summer 20 ☐

Information on the following pages must be completed before signatures are obtained.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head N/A	Date
College Curriculum Chair	Date 2/23/18
College Dean	Date 2/23/18
Graduate Council Chair	Date 4-10-18
Provost/VP Academic Affairs	Date 1-18-19
Presidential Approval	Date 1-29-19
Board of Governors Approval	Date

PROGRAM PRO-FORMA BUSINESS MODEL

Pro Forma For New or Existing Program
Program: Master of Medical Science - Physician Assistant

MMS, Physician Assistant

Academic Year for First Entering Class: AY20-21

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11
	AY18-19	AY19-20	AY20-21	AY21-22	AY22-23	AY23-24	AY24-25	AY25-26	AY26-27	AY27-28	AY28-29
PERSONNEL EXPENSES											
Full-time Faculty	$ 128,588	$ 599,440	$ 635,946	$ 655,024	$ 674,675	$ 694,915	$ 715,763	$ 784,406	$ 807,938	$ 832,177	$ 857,142
Part-time Faculty	$ -	$ -	$ 70,840	$ 77,409	$ 79,731	$ 82,123	$ 84,587	$ 87,124	$ 89,738	$ 92,430	$ 95,203
Graduate Assistants	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Staff	$ 9,455	$ 38,955	$ 73,063	$ 75,255	$ 77,513	$ 79,838	$ 82,233	$ 84,700	$ 87,241	$ 89,859	$ 92,554
Faculty Recruitment		$ 12,000									
PERSONNEL EXPENSES TOTAL	$ 138,043	$ 650,395	$ 779,849	$ 807,688	$ 831,919	$ 856,876	$ 882,583	$ 956,231	$ 984,918	$ 1,014,465	$ 1,044,899
EMPLOYEE-BASED EXPENSES											
Number of Employees	3	7	7	7	7	7	7	7	7	7	7
Desk Cost: Phone/Network, Software,Computer Replacement (5yr cycle)	$ 5,700	$ 9,100	$ 3,500	$ 3,500	$ 3,500	$ 7,700	$ 9,100	$ 3,500	$ 3,500	$ 3,500	$ 7,700
EMPLOYEE-BASED EXPENSES TOTAL	$ 5,700	$ 9,100	$ 3,500	$ 3,500	$ 3,500	$ 7,700	$ 9,100	$ 3,500	$ 3,500	$ 3,500	$ 7,700
ANNUAL OPERATING EXPENSES											
New Program Application		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Annual Accreditation Fees (ARC-PA)	$ 19,000	$ 7,500	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000	$ 15,000
Faculty Development	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Associations, Conferences, and Travel	$ 20,050	$ 34,950	$ 34,950	$ 34,950	$ 34,950	$ 34,950	$ 34,950	$ 34,950	$ 34,950	$ 34,950	$ 34,950
Events	$ -	$ -	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000
Office Expense	$ 10,000	$ 10,000	$ 7,500	$ 7,725	$ 7,957	$ 8,195	$ 8,441	$ 8,695	$ 8,955	$ 9,224	$ 9,501
Equipment Maintenance	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Office Copier (Copy Charges in Office Expense)	$ -	$ 8,000	$ 8,000	$ 8,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Library Resources/Other Books&Manuals	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Clinical rotations (@2500 /stdt/semester (3))	$ -	$ -	$ -	$ -	$ 163,875	$ 163,875	$ 199,500	$ 199,500	$ 199,500	$ 199,500	$ 199,500
Gross Anatomy Costs	$ -	$ -	$ 13,000	$ 13,000	$ 16,000	$ 16,000	$ 16,000	$ 16,000	$ 16,000	$ 16,000	$ 16,000
Simulation Activities	$ -	$ -	$ 20,000	$ 25,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000	$ 30,000
Laboratory supplies	$ -	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
Standardized Patients	$ -	$ -	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000	$ 10,000
Exams	$ -	$ -	$ -	$ 1,000	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 6,000	$ 6,000
Facility Costs	$ -	$ 300,000	$ 200,000	$ 208,000	$ 216,320	$ 224,973	$ 233,972	$ 243,331	$ 253,064	$ 363,186	$ 273,714
Student Recruitment	$ -	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000	$ 3,000
CASPA Application Service - Set-up fee	$ -	$ 5,500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other Expenses	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000
Contingency		$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000
Indirect Costs to University	$ -	$ -	$ 22,500	$ 56,250	$ 78,750	$ 101,250	$ 111,375	$ 122,513	$ 134,764	$ 148,240	$ 163,064

Pro Forma For New or Existing Program
Program: Master of Medical Science - Physician Assistant

MMS, Physician Assistant

Academic Year for First Entering Class: AY20-21

	Year 1 AY18-19	Year 2 AY19-20	Year 3 AY20-21	Year 4 AY21-22	Year 5 AY22-23	Year 6 AY23-24	Year 7 AY24-25	Year 8 AY25-26	Year 9 AY26-27	Year 10 AY27-28	Year 11 AY28-29
ANNUAL OPERATING EXPENSES TOTAL	**$ 94,050**	**$ 488,950**	**$ 456,950**	**$ 504,925**	**$ 704,852**	**$ 736,243**	**$ 791,238**	**$ 811,988**	**$ 834,233**	**$ 958,101**	**$ 883,729**
PERSONNEL EXPENSES TOTAL	$ 138,043	$ 650,395	$ 779,849	$ 807,688	$ 831,919	$ 856,876	$ 882,583	$ 956,231	$ 984,918	$ 1,014,465	$ 1,044,899
EMPLOYEE-BASED EXPENSES TOTAL	$ 5,700	$ 9,100	$ 3,500	$ 3,500	$ 3,500	$ 7,700	$ 9,100	$ 3,500	$ 3,500	$ 3,500	$ 7,700
ANNUAL OPERATING EXPENSES TOTAL	**$ 94,050**	**$ 488,950**	**$ 456,950**	**$ 504,925**	**$ 704,852**	**$ 736,243**	**$ 791,238**	**$ 811,988**	**$ 834,233**	**$ 958,101**	**$ 883,729**
TOTAL EXPENDITURE ESTIMATES	**$ 237,793**	**$ 1,148,445**	**$ 1,240,299**	**$ 1,316,113**	**$ 1,540,271**	**$ 1,600,820**	**$ 1,682,921**	**$ 1,771,718**	**$ 1,822,651**	**$ 1,976,066**	**$ 1,936,328**
New Students	0	0	25	25	30	30	30	30	30	30	30
Total Students	0	0	25	48	75	80	85	85	85	85	85
Tuition Revenue	$ -	$ -	$ 638,250	$ 1,585,839	$ 2,405,005	$ 2,728,846	$ 3,000,551	$ 3,150,123	$ 3,307,207	$ 3,472,197	$ 3,645,397
Other Non-student Revenue	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
TOTAL REVENUE ESTIMATES	**$ -**	**$ -**	**$ 638,250**	**$ 1,585,839**	**$ 2,405,005**	**$ 2,728,846**	**$ 3,000,551**	**$ 3,150,123**	**$ 3,307,207**	**$ 3,472,197**	**$ 3,645,397**
ANNUAL NET REVENUE	**$ (237,793)**	**$ (1,148,445)**	**$ (602,049)**	**$ 269,726**	**$ 864,734**	**$ 1,128,026**	**$ 1,317,631**	**$ 1,378,405**	**$ 1,484,556**	**$ 1,496,132**	**$ 1,709,070**
CUMULATIVE REVENUE	**$ (237,793)**	**$ (1,386,237)**	**$ (1,988,286)**	**$ (1,718,560)**	**$ (853,826)**	**$ 274,200**	**$ 1,591,830**	**$ 2,970,235**	**$ 4,454,791**	**$ 5,950,923**	**$ 7,659,992**

NON DUPLICATION CORRESPONDENCE

MARSHALL UNIVERSITY
Joan C. Edwards School of Medicine
www.jcesom.marshall.edu

Office of the Dean

January 29, 2019

To Whom It May Concern,

I am writing this letter in support of the Masters of Medical Science Physician Assistant Program at Marshall University. This program will complement the medical school and provide high quality medical education to develop the needed healthcare providers within our state.

There is a demand for physician assistants in our state, as well as nationwide. With the increasing age, and higher than average number of seniors in our state over the age of 65, there is a growing demand for health care and the need for physician assistants in the state is growing. Having a physician assistant program will complement the School of Medicine. The need for trained healthcare teams is ever expanding.

Our state currently has three physician assistant programs not within a medical university. Although WVU is currently entering the process of beginning a physician assistant program as well, admission class numbers are small. Currently only one other PA program in the state is a state school. I believe that training PA students within the Joan C. Edwards School of Medicine will be an advantage for our faculty to train the top PA's in the region and state and become the leader in the state, as well as competitive nationally.

We have been in contact with the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA) and are working with them through an intensive accreditation process, to deliver a high quality program consistent with the standards in PA education.

I give my full support to the Physician Assistant Program in the Joan C. Edwards School of Medicine at Marshall University. I believe we will offer a program to make the Joan C. Edwards School of Medicine and Marshall University proud. If you have any questions do not hesitate to contact me.

Sincerely,

Joseph I. Shapiro, M.D., F.A.S.N., M.A.C.P., F.A.H.A.
Vice President and Dean, Joan C. Edwards School of Medicine
Professor of Medicine
Marshall University

MARSHALL UNIVERSITY
Joan C. Edwards School of Medicine
www.jcesom.marshall.edu

Office of the Dean

January 29, 2019

Dr. Lori Howard
Chair, Graduate Council
Marshall University
One John Marshall Drive
Huntington, WV 25755

Dear Dr. Howard:

The School of Medicine has been working with Ms. Ginger Boles, MS PA/C, Program Director for the Physician Assistant Program, on the curriculum demands of the Physician Assistant Program. She has weekly meetings with Dr. Bobby Miller, the Vice Dean for Medical Education for the School of Medicine. Both he and Dr. Nitin Puri, Associate Dean of Medical Education, are members of the Physician Assistant Program Curriculum Committee. Due to the nature of the sequential curriculum in the Physician Assistant program, there is no duplication that occurs in courses taught within the medical school.

If I can be of further assistance, please do not hesitate to contact me.

Sincerely,

Joseph I. Shapiro, M.D., F.A.S.N., M.A.C.P., F.A.H.A.
Vice President and Dean, Joan C. Edwards School of Medicine
Professor of Medicine
Marshall University

Boles, Ginger

From: Brazeau, Gayle
Sent: Thursday, January 31, 2019 6:46 PM
To: Prewitt, Michael; Somerville, Chuck; Boles, Ginger
Cc: Brazeau, Gayle; Blough, Eric; Stanton, Rob; Broedel-Zaugg, Kimberly
Subject: Re: Course Duplication

Good Evening all,

I have taken a look at these courses and also spoken with Eric. With respect to these courses, we do cover many of the same topics but our therapeutics courses are integration of clinical pharmacy, pharmacology and medicinal chemistry. We do not have separate Pharmacology courses.

We do have a separate pharmacokinetics course that includes pharmacogenetics. The course that might be the closest is Principles of Disease and Drug Action, but it focuses on looking at pathophysiology and pharmacology. The current Doctor of Pharmacy Curriculum is found at: https://www.marshall.edu/pharmacy/pharmd/#fndtn-efs-tabpane-1-3

That being said, we do have outstanding clinicans in the various clinical areas from psychiatry, cardiology, infectious disease, oncology, etc. that could perhaps work with others to provide some of these key areas as a part of a course.

Thank you. Regretfully, I will not be able to attend tomorrow's meeting. I am happy to talk at another time.

Gayle

From: Prewitt, Michael
Sent: Tuesday, January 29, 2019 8:39 AM
To: Somerville, Chuck; Brazeau, Gayle
Subject: Fwd: Course Duplication

I just sent a note to Ginger, the new PD of the PA program, for us to try and meet regarding their planned curriculum and whether there is any duplication we need to review.

Mike

Sent from my iPad

Begin forwarded message:

> **From:** "Boles, Ginger" <bolesg@marshall.edu>
> **Date:** January 29, 2019 at 8:21:25 AM EST
> **To:** "Prewitt, Michael" <prewittm@marshall.edu>
> **Subject: RE: Course Duplication**
>
> Dr. Prewitt,

Attached are the course descriptions. Our curriculum is driven by our accrediting body, the ARC-PA. As you can tell, the courses will all follow the clinical medicine courses and be based off of items covered in that course. The organ systems will all be divided between the clinical medicine courses. If you have any questions please do not hesitate to contact me.

Ginger Boles, MS PA/C

From: Prewitt, Michael <prewittm@marshall.edu>
Sent: Monday, January 28, 2019 9:03 PM
To: Boles, Ginger <bolesg@marshall.edu>
Subject: Re: Course Duplication

Can you send me the descriptions, I think the Graduate Council will want to see syllabi as will my faculty committee.

Mike

Sent from my iPhone

On Jan 28, 2019, at 7:59 PM, Boles, Ginger <bolesg@marshall.edu> wrote:

> Dr. Prewitt,
>
> Thank you for the welcome to Marshall University. I look forward to great things here at Marshall. Thank you also for the clarification, I actually meant I had been referred to you by both Mr McGuffey and Dean Pittenger. I apologize for any confusion.
>
> I met with Dr Howard the Chair of the Graduate Council and she walked me through the process of the Application for Degree. Her instructions were that course names and numbers were due with this document. I have completed the Application for Degree, and on reviewing realized I needed a few additional pieces of documentation, hence the email this evening. The targeted date for that is Feb 1, 2019. We discussed course syllabi and descriptions and targeted those to be turned into the Graduate Council in August.
>
> Having said all that, course syllabi are not complete but course descriptions are, if that is helpful. I appreciate all the help, as every University's process is different.
>
> Respectfully,
> Ginger
>
> ---
>
> **From:** Prewitt, Michael
> **Sent:** Monday, January 28, 2019 6:11:44 PM
> **To:** Boles, Ginger
> **Subject:** Re: Course Duplication
>
> Ginger,

Boles, Ginger

From: Prewitt, Michael
Sent: Monday, February 4, 2019 1:53 PM
To: Boles, Ginger; Pfost, Gretchen; Somerville, Chuck
Cc: Wilson, Stephen L; McGuffey, Michael
Subject: RE: Meeting

Ginger,

As far as I can see by reading the course descriptions you emailed us, I don't see any apparent duplication. Once you have detailed course syllabi completed I'd appreciate an opportunity to review them.

Thanks.

Mike

From: Boles, Ginger <bolesg@marshall.edu>
Sent: Monday, February 4, 2019 12:42 PM
To: Prewitt, Michael <prewittm@marshall.edu>; Pfost, Gretchen <gretchen.pfost@marshall.edu>; Somerville, Chuck <somervil@marshall.edu>
Cc: Wilson, Stephen L <wilsonsl@marshall.edu>; McGuffey, Michael <mcguffey@marshall.edu>
Subject: RE: Meeting

Good afternoon everyone !! First, Dr. Somerville, please accept my sincere apology, somehow I left you off the email below on Friday – I specifically remember looking up your email address but obviously I did something wrong – I am sorry.

I received documentation yesterday from Dr. Davis regarding no course duplication. From our meeting on Friday, my understanding was there were no concerns of course duplication from anyone at the meeting. Dr. Prewitt and Dr. Somerville – Could you provide me with something in writing today please,?

I appreciate everyone's time.
Thank you
Ginger

From: Boles, Ginger
Sent: Friday, February 1, 2019 2:18 PM
To: Prewitt, Michael <prewittm@marshall.edu>; Pfost, Gretchen <gretchen.pfost@marshall.edu>
Cc: Wilson, Stephen L <wilsonsl@marshall.edu>; McGuffey, Michael <mcguffey@marshall.edu>
Subject: Meeting

Just wanted to take a minute and thank everyone for meeting today on this snowy Friday. I truly appreciate everyone's time and support.

Have a good weekend.
Ginger

Ginger Boles, MS PA/C
Founding Physician Assistant Program Director
Joan C. Edwards School of Medicine
Marshall University
1600 Medical Center Dr, Office 3403
Huntington, WV 25701
304-691-1979 (phone)
bolesg@marshall.edu

Boles, Ginger

From: Somerville, Chuck
Sent: Monday, February 4, 2019 5:41 PM
To: Boles, Ginger
Cc: Wilson, Stephen L
Subject: Re: Meeting

Dear Ms. Boles;

Thanks very much for meeting with us last week to discuss your work toward the establishment of a Physician Assistant program at Marshall University.

Though some of our existing courses include content that will overlap with some of the courses that you are developing, both the context for the information and the intent of the coursework is necessarily different. I am satisfied that the curriculum within your program will create no conflict with existing coursework or programs in the College of Science. In fact, we look forward to the opportunity to prepare students to enter your program.

Good luck in completing your preparations for the new PA Program. Please let me know if there is anything that the College of Science can do to help.

Best Regards,

Chuck Somerville

Charles C. Somerville, PhD, FLS
Dean, College of Science
Marshall University
(304)696-2424

From: "Boles, Ginger" <bolesg@marshall.edu>
Date: Monday, February 4, 2019 at 12:41 PM
To: Michael Prewitt <prewittm@marshall.edu>, "Pfost, Gretchen" <gretchen.pfost@marshall.edu>, Charles Somerville <somervil@marshall.edu>
Cc: "Wilson, Stephen L" <wilsonsl@marshall.edu>, "McGuffey, Michael" <mcguffey@marshall.edu>
Subject: RE: Meeting

Good afternoon everyone !! First, Dr. Somerville, please accept my sincere apology, somehow I left you off the email below on Friday – I specifically remember looking up your email address but obviously I did something wrong – I am sorry.

I received documentation yesterday from Dr. Davis regarding no course duplication. From our meeting on Friday, my understanding was there were no concerns of course duplication from anyone at the meeting. Dr. Prewitt and Dr. Somerville – Could you provide me with something in writing today please,?

I appreciate everyone's time.
Thank you
Ginger

From: Boles, Ginger
Sent: Friday, February 1, 2019 2:18 PM
To: Prewitt, Michael <prewittm@marshall.edu>; Pfost, Gretchen <gretchen.pfost@marshall.edu>
Cc: Wilson, Stephen L <wilsonsl@marshall.edu>; McGuffey, Michael <mcguffey@marshall.edu>
Subject: Meeting

Just wanted to take a minute and thank everyone for meeting today on this snowy Friday. I truly appreciate everyone's time and support.

Have a good weekend.
Ginger

Ginger Boles, MS PA/C
Founding Physician Assistant Program Director
Joan C. Edwards School of Medicine
Marshall University
1600 Medical Center Dr, Office 3403
Huntington, WV 25701
304-691-1979 (phone)
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