PART I – NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

1. Request to change the requirements for the Bachelor of Science degree in Forestry in the Department of Forestry.
   a. Under the heading Requirements for the Bachelor of Science Degree in Forestry make the following changes:
      (1) Replace paragraph two with the following:
          The University’s Tier II writing requirement for the Forestry major is met by completing Forestry 330, 340L, 405, 406L, 414, and 462. Those courses are referenced in item 3. a. below.
      (2) In item 3. a. change the total credits from ‘61’ to ‘64’.
      (3) In item 3. a. delete the following courses:
          FOR 404 Forest Ecology 3
          FOR 404L Forest Ecology Laboratory 1
          FOR 412 Wildland Fire 2
          FOR 472 Ecological Monitoring and Data Analysis 3
          FW 419 Applications of Geographic Information Systems to Natural Resources 4

      Add the following courses:
          FOR 215 Introduction to Wildland Fire 2
          FOR 340 Forest Ecology 3
          FOR 340L Forest Ecology Laboratory 1
          FOR 372 Ecological Monitoring and Data Analysis 3
          FOR 413 Wildland Fire Ecology and Management 3
          FOR 419 Applications of Geographic Information Systems to Natural Resources Management 4
      (4) Add the following item 3. f.:
          One of the following (1 to 3 credits):
          FOR 490 Independent Study in Forestry 1 to 3
          FOR 493 Professional Internship in Forestry 1 to 3
          An approved study abroad experience 1 to 3

Effective Fall 2020.
COLLEGE OF NATURAL SCIENCE

1. Request to establish a **Graduate Certificate in Accelerator Science and Engineering** in the Department of Physics and Astronomy. The University Committee on Graduate Studies (UCGS) recommended approval of this request at its October 14, 2019 meeting.

The **Graduate Certificate in Accelerator Science and Engineering is a Type 2 graduate certificate and will appear on the transcript as “Graduate Certificate Program in Accelerator Science and Engineering”**.

a. **Background Information:**

Recent Department of Energy (DOE) and National Science Foundation (NSF) studies detailed issues with producing a sufficient number of highly trained Accelerator Science and Engineering (AS&E) specialists to meet needs in both DOE laboratory facilities, discovery science, and technology/industry. Fulfilling these needs is critical to maintaining U.S. leadership in accelerator technology and enhancing economic growth. In 2017 the DOE issued a Funding Opportunity Announcement for Traineeship in AS&E. MSU’s proposal was the sole recipient of a DOE grant to address critical workforce needs in AS&E. Historically, MSU has produced a highly technical workforce in AS&E due to the presence of the National Superconducting Cyclotron Laboratory (NSCL). For decades, many graduate students have been trained at the NSCL under NSF-sponsored cooperative agreements and other federal funding. Currently MSU offers master’s and doctoral degrees in physics and in engineering. MSU now has the opportunity to offer an exciting training opportunity in accelerator science and engineering. The AS&E Traineeship (ASET) program at MSU is supported by the DOE and leverages the unique campus-based equipment, systems, and experts at the Facility for Rare Isotope Beams (FRIB) and NSCL. It also makes use of the many MSU faculty involved with the ASET program across several MSU academic programs and couples them with resources at U.S. DOE national laboratories. Partnering academic programs at MSU include the Departments of Physics and Astronomy, and Chemistry in the College of Natural Science in addition to the Department of Electrical and Computer Engineering in the College of Engineering. MSU has established a novel AS&E graduate student program to address all the major need areas stressed in the recent DOE and NSF studies: (1) Physics and engineering of large accelerators; (2) Superconducting RF (SRF) accelerator physics and engineering; (3) RF power engineering; (4) Large-scale cryogenic systems.

Students completing the curriculum will be certified, well trained, and ready for productive careers in AS&E where there are critical workforce needs nationally. An AS&E graduate certificate allows MSU graduate students to show future employers that they have an expertise in accelerator technology.

With the recent development of FRIB at MSU, the opportunities for graduate student training in AS&E at MSU have multiplied. Presently, MSU is building FRIB, a new ~$1B national-user facility for nuclear science funded by the DOE, MSU, and the state of Michigan. FRIB provides numerous training opportunities in the areas one through four listed above in a large facility. The large increase in scale constituted by FRIB (~ 5x larger) relative to the NSCL results in national-lab-scale facilities that can be exploited to do much more in AS&E training at MSU relative to historic levels to help address critical needs in the field. FRIB’s location on campus provides unique opportunities for AS&E student training at a world-class accelerator facility while the students are enrolled in Physics and Engineering courses.

b. **Academic Programs Catalog Text:**

The **Graduate Certificate in Accelerator Science and Engineering provides graduate students the opportunity to further their understanding of accelerator science and technology. Graduates will be certified, well trained, and ready for productive careers in Accelerator Science and Engineering. Research is supported by the Accelerator Science and Engineering Traineeship (ASET) Program. The certificate is available to masters or doctoral students at Michigan State University. Students can apply for the certificate at any time prior to receiving their graduate degree. Students who wish to complete the certificate must consult with the Graduate Program Director in Accelerator Science and Engineering prior to beginning course work in the program.**
Requirements for the Graduate Certificate in Accelerator Science and Engineering

C R E D I T S

Complete a minimum of 9 credits from the following with a grade-point average of 3.0:

1. The following course (3 credits):
   PHY 862 Accelerator Systems 3

2. At least two courses from the following or any other 800 or 900-level accelerator science-focused courses as approved by the Physics and Astronomy Graduate Program Director (6 credits):
   ECE 837 Computational Methods in Electromagnetics 3
   ECE 850 Electrodynamics of Plasmas 3
   ECE 989 Advanced Topics in Plasmas 3
   PHY 861 Beam Physics 3
   PHY 905 Special Problems 3
   PHY 961 Nonlinear Beam Dynamics 3
   PHY 962 Particle Accelerators 3
   PHY 963 U.S. Particle Accelerator School 3
   PHY 964 Seminar in Beam Physics Research 3

Students who enroll in PHY 905 must obtain approval of the Physics and Astronomy Graduate Program Director to ensure appropriate content. PHY 905 may be taken more than once as long as the topic taken is different.

Effective Summer 2020.

COLLEGE OF NURSING

1. Request to establish a Graduate Certificate in Adult-Gerontology - Clinical Nurse Specialist in the College of Nursing. The University Committee on Graduate Studies (UCGS) will consider this request at its November 11, 2019 meeting.

The Graduate Certificate in Adult-Gerontology - Clinical Nurse Specialist is a Type 2 graduate certificate and will appear on the transcript as "Graduate Certificate Program in Adult-Gerontology - Clinical Nurse Specialist".

a. Background Information:

   Individuals with Adult Practice Registered Nurse (APRN) certification and license authority from the state may wish to extend their scope of practice to provide care for clients outside their original competency set from their graduate education verified by their national certification. This may allow them to care for a broader group of patients, for example, an APRN certified in women's health or pediatrics is restricted to those populations. If they wish to provide care in a setting that included adult men, an additional certification would be necessary. Obtaining a post-graduate certificate in both Family of Adult-Gerontology and successfully writing for certification in that specialty would allow them to do so. A primary care Nurse Practitioner (NP) may want preparation for in-patient services and select the Adult-Gerontology Clinical Nurse Specialist with acute care focus. The five clinical courses required for the post-graduate certificate provides the didactic content and clinical practice hours required by the national certification bodies.

b. Academic Programs Catalog Text:

   The Graduate Certificate in Adult-Gerontology - Clinical Nurse Specialist is for individuals with Advanced Practice Registered Nurse certification and license authority from the state who wish to extend their scope of practice to provide broader care for patients outside their original competency set from their graduate education verified by their national certification.

   Admission

   To be considered for admission to the Graduate Certificate in Adult-Gerontology - Clinical Nurse Specialist, an applicant must:
   1. Submit a university application and a curriculum vita or resume.
   2. Complete a graduate degree in Nursing from an accredited college or university.
3. Possess a current unrestricted license to practice nursing as a registered nurse in the applicant’s state or country. For those applicants practicing in Michigan, a current registered nurse Michigan license is required. Applicants who hold registered nurse licensure from other states or countries and who are a Nurse Practitioner may be admitted provisionally with the requirement that a United States and Michigan registered nurse license must be obtained prior to progression.

4. Possess current certification from a U.S. National Certifying Board as an NP, CNS, CRNA or CNM.

5. Have a minimum grade-point average of 3.0 (4.0 scale) for total credits completed during the graduate nursing program.

6. Submit a written essay that addresses the applicant’s career goals and motivations for additional graduate study in the selected area of specialty nursing practice; nurse practitioner, or adult-gerontology clinical nurse.

7. Submit three letters of recommendation. The reference letters must be from a source that has direct knowledge of the applicant’s work and educational experience specifying the applicant’s ability to do graduate work.

8. Complete an admission interview with the college of Nursing faculty. Recommendations for admission are made by the faculty committee to the Dean of the College based on the requirements for admission and the personal interview.

9. If the applicant’s native language is not English, the applicant must complete the Test of English as a Foreign Language (TOEFL) with a minimum average score of 550, no subscore below 52 on the paper-based test (PBT). If the applicant completes the Internet-based test (iBT), no subscore below 19 for reading, listening, and speaking; no writing subscore below 22 and a minimum average score of 80. Applicants should have all test scores sent from the testing agency directly to the Michigan State University Office of Admissions.

A gap analysis will be conducted to assess competency and prior course work in the three core APRN clinical courses (3Ps).

NUR 907 Advanced Pathophysiology for the Advanced Practice Registered Nurse
NUR 908 Advanced Physical Assessment for the Advanced Practice Registered Nurse
NUR 909 Advanced Pharmacology for the Advanced Practice Registered Nurse

Applicants may choose to take any of the above courses for refresher. Faculty will assess compatibility of previous courses in these areas and may require one or all before enrolling in the graduate certificate. The student must demonstrate pharmacology course work (credit and/or continuing education credit) within the past five years.

**Requirements for the Graduate Certificate in Adult-Gerontology - Clinical Nurse Specialist**

The student must complete all of the following courses (27 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 931</td>
<td>Wellness Promotion for Diverse Populations</td>
<td>3</td>
</tr>
<tr>
<td>NUR 932</td>
<td>Clinical Decision Making and Management of Acute Chronic Complex Conditions</td>
<td>6</td>
</tr>
<tr>
<td>NUR 933</td>
<td>Clinical Nurse Specialist Advanced Practice Role Development I</td>
<td>6</td>
</tr>
<tr>
<td>NUR 934</td>
<td>Clinical Nurse Specialist Advanced Practice Role Development II</td>
<td>6</td>
</tr>
<tr>
<td>NUR 935</td>
<td>Clinical Nurse Specialist Advanced Practice Role Development III</td>
<td>6</td>
</tr>
</tbody>
</table>

Effective Fall 2020.
2. Request to establish a **Graduate Certificate** in **Nurse Practitioner - Psychiatric Mental Health** in the College of Nursing. The University Committee on Graduate Studies (UCGS) will consider this request at its November 11, 2019 meeting.

The **Graduate Certificate in Nurse Practitioner - Psychiatric Mental Health** is a Type 2 graduate certificate and will appear on the transcript as "Graduate Certificate Program in Nurse Practitioner - Psychiatric Mental Health".

a. **Background Information:**

Individuals with Adult Practice Registered Nurse (APRN) certification and license authority from the state may wish to extend their scope of practice to provide care for clients outside their original competency set from their graduate education verified by their national certification. This may allow them to care for a broader group of patients, for example, an APRN certified in women's health or pediatrics is restricted to those populations. If they wish to provide care in a setting that included adult men, an additional certification would be necessary. Obtaining a post-graduate certificate in both Family of Adult-Gerontology and successfully writing for certification in that specialty would allow them to do so. A primary care Nurse Practitioner (NP) may want preparation for in-patient services and select the Adult-Gerontology Clinical Nurse Specialist (CNS) with acute care focus. Mental Health professionals are in particularly acute demand. Obtaining a certificate and obtaining certification as a psychiatric mental health nurse practitioner would support adding care for these clients to the competency of a nurse certified in any of the APRN roles. The five clinical courses required for the post-graduate certificate provides the didactic content and clinical practice hours required by the national certification bodies.

b. **Academic Programs Catalog Text:**

The **Graduate Certificate in Nurse Practitioner - Psychiatric Mental Health** is for individuals with Advanced Practice Registered Nurse certification and license authority from the state who wish to extend their scope of practice to provide broader care for patients outside their original competency set from their graduate education verified by their national certification.

**Admission**

To be considered for admission to the Graduate Certificate in Nurse Practitioner - Psychiatric Mental Health, an applicant must:

1. Submit a university application and a curriculum vita or resume.
2. Have completed a graduate degree in Nursing from an accredited college or university.
3. Possess a current unrestricted license to practice nursing as a registered nurse in the applicant’s state or country. For those applicants practicing in Michigan, a current registered nurse Michigan license is required. Applicants who hold registered nurse licensure from other states or countries and who are a Nurse Practitioner may be admitted provisionally with the requirement that a United States and Michigan registered nurse license must be obtained prior to progression.
4. Possess current certification from a U.S. National Certifying Board as an NP, CNS, CRNA or CNM.
5. Have a minimum grade-point average of 3.0 (4.0 scale) for total credits completed during the graduate nursing program.
6. Submit a written essay that addresses the applicant’s career goals and motivations for additional graduate study in the selected area of specialty nursing practice; nurse practitioner, or adult-gerontology clinical nurse.
7. Submit three letters of recommendation. The reference letters must be from a source that has direct knowledge of the applicant’s work and educational experience.
8. Complete an admission interview with the college of Nursing faculty. Recommendations for admission are made by the faculty committee to the Dean of the College based on the requirements for admission and the personal interview.
9. If the applicant’s native language is not English, the applicant must complete the Test of English as a Foreign Language (TOEFL) with a minimum average score of 550, no subscore below 52 on the paper-based test (PBT). If the applicant completes the Internet-based test (iBT), no subscore below 19 for reading, listening, and speaking; no writing subscore below 22 and a minimum average score of 80. Applicants should have all test scores sent from the testing agency directly to the Michigan State University Office of Admissions.
A gap analysis will be conducted to assess competency and prior course work in the three core APRN clinical courses (3Ps).

NUR 907 Advanced Pathophysiology for the Advanced Practice Registered Nurse
NUR 908 Advanced Physical Assessment for the Advanced Practice Registered Nurse
NUR 909 Advanced Pharmacology for the Advanced Practice Registered Nurse

Applicants may choose to take any of the above courses for refresher. Faculty will assess compatibility of previous courses in these areas and may require one or all before enrolling in the graduate certificate. The student must demonstrate pharmacology course work (credit and/or continuing education credit) within the past five years.

Requirements for the Graduate Certificate in Nurse Practitioner - Psychiatric Mental Health

The student must complete all of the following courses (27 credits):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 952</td>
<td>Psychopharmacology and Neuropathological Basis of Mental Illness</td>
<td>3</td>
</tr>
<tr>
<td>NUR 953</td>
<td>Clinical Diagnosis and Management I - Psychiatric Assessment and Diagnosis</td>
<td>6</td>
</tr>
<tr>
<td>NUR 954</td>
<td>Clinical Diagnosis and Management II – Evidence-Based Therapeutic Interventions</td>
<td>6</td>
</tr>
<tr>
<td>NUR 955</td>
<td>Clinical Diagnosis and Management III - Special Populations and Group</td>
<td>6</td>
</tr>
<tr>
<td>NUR 956</td>
<td>Clinical Diagnosis and Management IV - Complex and Collaborative Mental Health Care</td>
<td>6</td>
</tr>
</tbody>
</table>

Effective Fall 2020.

3. Request to establish a Graduate Certificate in Nurse Practitioner - Adult-Gerontological Primary Care in the College of Nursing. The University Committee on Graduate Studies (UCGS) will consider this request at its November 11, 2019 meeting.

The Graduate Certificate in Nurse Practitioner - Adult-Gerontological Primary Care is a Type 2 graduate certificate and will appear on the transcript as "Graduate Certificate Program in Nurse Practitioner - Adult-Gerontological Primary Care".

a. Background Information:

Individuals with Adult Practice Registered Nurse (APRN) certification and license authority from the state may wish to extend their scope of practice to provide care for clients outside their original competency set from their graduate education verified by their national certification. This may allow them to care for a broader group of patients, for example, an APRN certified in women's health or pediatrics is restricted to those populations. If they wish to provide care in a setting that included adult men, an additional certification would be necessary. Obtaining a post-graduate certificate in both Family of Adult-Gerontology and successfully writing for certification in that specialty would allow them to do so. A primary care Nurse Practitioner (NP) may want preparation for in-patient services and select the Adult-Gerontology Clinical Nurse Specialist (CNS) with acute care focus. The five clinical courses required for the post-graduate certificate provides the didactic content and clinical practice hours required by the national certification bodies.

b. Academic Programs Catalog Text:

The Graduate Certificate in Nurse Practitioner - Adult-Gerontological Primary Care is for individuals with Advanced Practice Registered Nurse certification and license authority from the state who wish to extend their scope of practice to provide broader care for patients outside their original competency set from their graduate education verified by their national certification.

Admission

To be considered for admission to the Graduate Certificate in Nurse Practitioner - Adult-Gerontological Primary Care, an applicant must:

1. Submit a university application and a curriculum vita or resume.
2. Have completed a graduate degree in Nursing from an accredited college or university.
3. Possess a current unrestricted license to practice nursing as a registered nurse in the applicant’s state or country. For those applicants practicing in Michigan, a current registered nurse Michigan license is required. Applicants who hold registered nurse licensure from other states or countries and who are a Nurse Practitioner may be admitted provisionally with the requirement that a United States and Michigan registered nurse license must be obtained prior to progression.

4. Possess current certification from a U.S. National Certifying Board as an NP, CNS, CRNA or CNM.

5. Have a minimum grade-point average of 3.0 (4.0 scale) for total credits completed during the graduate nursing program.

6. Submit a written essay that addresses the applicant’s career goals and motivations for additional graduate study in the selected area of specialty nursing practice; nurse practitioner, or adult-gerontology clinical nurse.

7. Submit three letters of recommendation. The reference letters must be from a source that has direct knowledge of the applicant’s work and educational experience.

8. Complete an admission interview with the college of Nursing faculty. Recommendations for admission are made by the faculty committee to the Dean of the College based on the requirements for admission and the personal interview.

9. If the applicant’s native language is not English, the applicant must complete the Test of English as a Foreign Language (TOEFL) with a minimum average score of 550, no subscore below 52 on the paper-based test (PBT). If the applicant completes the Internet-based test (iBT), no subscore below 19 for reading, listening, and speaking; no writing subscore below 22 and a minimum average score of 80. Applicants should have all test scores sent from the testing agency directly to the Michigan State University Office of Admissions.

A gap analysis will be conducted to assess competency and prior course work in the three core APRN clinical courses (3Ps).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 907</td>
<td>Advanced Pathophysiology for the Advanced Practice Registered Nurse</td>
</tr>
<tr>
<td>NUR 908</td>
<td>Advanced Physical Assessment for the Advanced Practice Registered Nurse</td>
</tr>
<tr>
<td>NUR 909</td>
<td>Advanced Pharmacology for the Advanced Practice Registered Nurse</td>
</tr>
</tbody>
</table>

Applicants may choose to take any of the above courses for refresher. Faculty will assess compatibility of previous courses in these areas and may require one or all before enrolling in the graduate certificate. The student must demonstrate pharmacology course work (credit and/or continuing education credit) within the past five years.

**Requirements for the Graduate Certificate in Nurse Practitioner - Adult-Gerontological Primary Care**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 913</td>
<td>Health Promotion – Adult-Gerontology</td>
<td>3</td>
</tr>
<tr>
<td>NUR 925</td>
<td>Clinical Diagnosis and Management I – Adult-Gerontological</td>
<td>6</td>
</tr>
<tr>
<td>NUR 926</td>
<td>Clinical Diagnosis and Management II – Adult-Gerontological</td>
<td>6</td>
</tr>
<tr>
<td>NUR 927</td>
<td>Clinical Diagnosis and Management III – Adult-Gerontological</td>
<td>6</td>
</tr>
<tr>
<td>NUR 928</td>
<td>Clinical Diagnosis and Management IV – Adult-Gerontological</td>
<td>6</td>
</tr>
</tbody>
</table>

Effective Fall 2020.
4. Request to establish a **Graduate Certificate** in **Nurse Practitioner - Family** in the College of Nursing. The University Committee on Graduate Studies (UCGS) will consider this request at its November 11, 2019 meeting.

The **Graduate Certificate in Nurse Practitioner - Family** is a Type 2 graduate certificate and will appear on the transcript as "Graduate Certificate Program in Nurse Practitioner - Family".

a. **Background Information:**

Individuals with Adult Practice Registered Nurse (APRN) certification and license authority from the state may wish to extend their scope of practice to provide care for clients outside their original competency set from their graduate education verified by their national certification. This may allow them to care for a broader group of patients, for example, an APRN certified in women's health or pediatrics is restricted to those populations. If they wish to provide care in a setting that included adult men, an additional certification would be necessary. Obtaining a post-graduate certificate in both Family of Adult-Gerontology and successfully writing for certification in that specialty would allow them to do so. A primary care Nurse Practitioner (NP) may want preparation for in-patient services and select the Adult-Gerontology Clinical Nurse Specialist (CNS) with acute care focus. The five clinical courses required for the post-graduate certificate provides the didactic content and clinical practice hours required by the national certification bodies.

b. **Academic Programs Catalog Text:**

The **Graduate Certificate in Nurse Practitioner - Family** is for individuals with Advanced Practice Registered Nurse certification and license authority from the state who wish to extend their scope of practice to provide broader care for patients outside their original competency set from their graduate education verified by their national certification.

**Admission**

To be considered for admission to the **Graduate Certificate in Nurse Practitioner - Family**, an applicant must:

1. Submit a university application and a curriculum vita or resume.
2. Have completed a graduate degree in Nursing from an accredited college or university.
3. Possess a current unrestricted license to practice nursing as a registered nurse in the applicant’s state or country. For those applicants practicing in Michigan, a current registered nurse Michigan license is required. Applicants who hold registered nurse licensure from other states or countries and who are a Nurse Practitioner may be admitted provisionally with the requirement that a United States and Michigan registered nurse license must be obtained prior to progression.

4. Possess current certification from a U.S. National Certifying Board as an NP, CNS, CRNA or CNM.

5. Have a minimum grade-point average of 3.0 (4.0 scale) for total credits completed during the graduate nursing program.

6. Submit a written essay that addresses the applicant’s career goals and motivations for additional graduate study in the selected area of specialty nursing practice; nurse practitioner, or adult-gerontology clinical nurse.

7. Submit three letters of recommendation. The reference letters must be from a source that has direct knowledge of the applicant's work and educational experience.

8. Complete an admission interview with the college of Nursing faculty. Recommendations for admission are made by the faculty committee to the Dean of the College based on the requirements for admission and the personal interview.

9. If the applicant’s native language is not English, the applicant must complete the Test of English as a Foreign Language (TOEFL) with a minimum average score of 550, no subscore below 52 on the paper-based test (PBT). If the applicant completes the Internet-based test (iBT), no subscore below 19 for reading, listening, and speaking; no writing subscore below 22 and a minimum average score of 80. Applicants should have all test scores sent from the testing agency directly to the Michigan State University Office of Admissions.
A gap analysis will be conducted to assess competency and prior course work in the three core APRN clinical courses (3Ps).

NUR 907 Advanced Pathophysiology for the Advanced Practice Registered Nurse
NUR 908 Advanced Physical Assessment for the Advanced Practice Registered Nurse
NUR 909 Advanced Pharmacology for the Advanced Practice Registered Nurse

Applicants may choose to take any of the above courses for refresher. Faculty will assess compatibility of previous courses in these areas and may require one or all before enrolling in the graduate certificate. The student must demonstrate pharmacology course work (credit and/or continuing education credit) within the past five years.

Requirements for the Graduate Certificate in Nurse Practitioner - Family

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUR 912</td>
<td>Health Promotion - Family</td>
<td>3</td>
</tr>
<tr>
<td>NUR 915</td>
<td>Clinical Diagnosis and Management I - Family</td>
<td>6</td>
</tr>
<tr>
<td>NUR 916</td>
<td>Clinical Diagnosis and Management II - Family</td>
<td>6</td>
</tr>
<tr>
<td>NUR 917</td>
<td>Clinical Diagnosis and Management III - Family</td>
<td>6</td>
</tr>
<tr>
<td>NUR 918</td>
<td>Clinical Diagnosis and Management IV - Family</td>
<td>6</td>
</tr>
</tbody>
</table>

Effective Fall 2020.

**COLLEGE OF OSTEOPATHIC MEDICINE**

1. Request to change the requirements for the Master of Science degree in Global Health in the College of Osteopathic Medicine. The University Committee on Graduate Studies (UCGS) will consider this request at its January 13, 2020 meeting.

   a. Under the heading Admission delete item 4., and renumber item 5. to item 4.

   b. Under the heading Requirements for the Master of Science Degree in Global Health make the following changes:

      (1) Change the total credits for the degree from ‘42’ to ‘30’.

      (2) Change item 2. to ‘Complete 3 credits from the following courses’ and add the following courses:

          | Course Code | Course Title                                      | Credits |
          |-------------|--------------------------------------------------|---------|
          | PSY 880     | Foundations of Evaluation Practice               | 3       |
          | PSY 881     | Evaluation Design                                | 3       |

      (3) Delete item 3.

      (4) Renumber item 4. to item 3.

Effective Summer 2020.
2. Request to change the requirements for the Graduate Certificate in Global Health in the College of Osteopathic Medicine. The University Committee on Graduate Studies (UCGS) will consider this request at its January 13, 2020 meeting.

The Graduate Certificate in Global Health is a Type 2 graduate certificate and will appear on the transcript as “Graduate Certificate Program in Global Health”.

a. Under the heading Admission delete item 4., and renumber item 5. to item 4.

b. Under the heading Requirements for the Graduate Certificate in Global Health replace the entire entry with the following:

   C R E D I T S

   The certificate program is available online only. Students must complete 9 credits from the following:

   1. Complete the following course:
      OST 822 Introduction to Global Health Practice   3

   2. Complete 6 credits from the following courses:
      OST 821 One Health – The Theory and Added Value of Transdisciplinary Collaborations to Global Health   3
      OST 823 Global Burden of Disease   3
      OST 824 Emerging Topics in Global Health   3
      OST 830 Independent Study in Global Health   3

   Effective Summer 2020.

3. Request to establish a Master of Science degree in PA Medicine in the Department of PA Medicine. The University Committee on Graduate Studies (UCGS) recommended approval of this request at its November 11, 2019 meeting.

a. Background Information:

   The state of Michigan has a well-known physician shortage that educators, legislators and health advocates are working to address. The Michigan Health Council in January 2012 reported, of the 5,472 family physicians in Michigan, 45% planned to retire by 2022. According to the Association of American Medical Colleges, by 2020 there will be a shortage of 8,000-12,000 physicians in Michigan, of which 4,000 will be primary care physicians. These statistics become even more concerning when the Center for Healthcare Research and Transformation data showed that the uninsured in Michigan has decreased from 10% of the population in 2009 to 5% in 2015. This means fewer healthcare providers are caring for an increasing insured population.

   A recent federal report “Reforming America’s Healthcare System through choice and competition” by The U.S. Department of Health and Human Services called for the utilization of physician assistants (PA) and other providers to address physician shortages. The report also recommends expanding scope of practice in states to allow PAs to practice to the full extent of their license and training.

   As a way to address the healthcare needs of Michigan, Michigan State University College of Osteopathic Medicine will develop a PA Medicine program that would join the six other currently accredited PA programs in the State. The mission of the Michigan State University Department of PA Medicine is to develop a team-based educational program that produces practice ready PAs. To achieve this goal, the department has partnered with the Hub for Innovation in Learning and Technology at Michigan State University to design a “Day 1 practice ready” PA curriculum. The Hub employed learning design and research expertise to lead the PA faculty through a Backward Design process to develop Program Outcomes and aligned assessments and to map the curriculum.

   The Hub has helped to build connections with MSU’s College of Human Medicine, College of Nursing, College of Business, College of Natural Science, and School of Social Work for potential broader interprofessional education after program development. The Hub continues to provide support researching assessment models for the program, including peer assessment, competency and mastery assessment models, and interprofessional education assessment.
This innovative curricular model integrates osteopathic and PA medical students to maximize collaborative experiences during their training. The vision for MSU PAs will be to improve access and patient health outcomes while innovating optimal collaborative medical care. One key issue the program will look to address is rural health care exposure throughout Michigan. As a land grant University, this will be a core value for the MSU PA Medicine program.

The College of Osteopathic Medicine has a long history of training physicians where the majority of graduates stay to practice in Michigan. The college will use this experience to innovate a PA program that will address the shortages of healthcare providers in the State of Michigan and have the first program in the state to train PAs side-by-side with physicians. Interprofessional education has long been a goal for many medical educators however few programs have been able to successfully integrate other health professionals into training programs.

b. **Academic Programs Catalog Text:**

The Department of PA Medicine in the College of Osteopathic Medicine at Michigan State University offers a 27-month curriculum leading to a Master of Science Degree in PA Medicine. PAs are medical professionals who diagnose illness, develop and manage treatment plans, prescribe medication, and often serve as a patient's principal healthcare provider. PAs practice in every medical specialty and collaborate in a team-based environment to provide medical care to a diverse patient population.

The curriculum leading to the degree includes four semesters of classroom and laboratory coursework, and three semesters of community-based clinical courses. The curriculum is divided into two components: the preclinical curriculum, presented in the first four semesters which focuses on the basic medical sciences and detailed coverage of the human body systems, and the development of clinical skills required to practice medicine; and the clinical curriculum during the final three semesters of the 27-month PA Medicine program which includes clinical training in community hospitals, clinics, and private practice offices affiliated with the Michigan State University College of Osteopathic Medicine PA Medicine from across the State of Michigan.

In addition to meeting the requirements of the University and the College of Osteopathic Medicine, students must meet the requirements below.

**Admission**

To be considered for admission to the Master of Science degree in PA Medicine, an applicant must submit the following:

1. The MSU Graduate School application.
2. The CAPSA (Central Application Service for Physician Assistants) application.
3. A transcript showing a completed undergraduate degree.
4. A personal statement describing interest and experience in PA Medicine, including career goals.
5. Three letters of reference.
6. A test of English language proficiency for students for whom English is not a first language. The minimum requirement TOEFL score may vary from the general university requirements. The exam must be taken by May 1 of the application cycle year and the score received by June 15 of the same year. A score of 100 on the iBT (Internet based testing) must be attained.
7. A transcript showing completion of prerequisite courses in anatomy, biochemistry, developmental psychology, English composition, general chemistry, human physiology microbiology with laboratory, and statistics. Students are allowed only two course retakes.

Students will be evaluated by an MSU College of Osteopathic Medicine PA Medicine screening team who will employ a rubric inclusive of the evaluation of academic performance, interview outcome, extracurricular experiences, letters of recommendation, and personal statements to determine eligibility for admission. Membership in professional organizations are preferred, but not required. Final admission decisions will be determined by the screening team which consists of PA Medicine and College of Osteopathic Medicine faculty, as well as community healthcare providers.
Requirements for the Master of Science Degree in PA Medicine

The Master of Science degree in PA Medicine is available only under Plan B (non-thesis). Students must complete 108 credits as specified below:

1. Complete all of the following courses (108 credits):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA 801</td>
<td>PEAK Study Skills</td>
<td>1</td>
</tr>
<tr>
<td>PA 810</td>
<td>Clinical Human Anatomy</td>
<td>8</td>
</tr>
<tr>
<td>PA 828</td>
<td>Genetics</td>
<td>2</td>
</tr>
<tr>
<td>PA 832</td>
<td>Microbiology</td>
<td>2</td>
</tr>
<tr>
<td>PA 839</td>
<td>Pathophysiology</td>
<td>2</td>
</tr>
<tr>
<td>PA 851</td>
<td>Physical Examination I</td>
<td>3</td>
</tr>
<tr>
<td>PA 852</td>
<td>Physical Examination II</td>
<td>3</td>
</tr>
<tr>
<td>PA 853</td>
<td>Physical Examination III</td>
<td>3</td>
</tr>
<tr>
<td>PA 854</td>
<td>Physical Examination IV</td>
<td>3</td>
</tr>
<tr>
<td>PA 855</td>
<td>Procedures and Diagnostics I</td>
<td>1</td>
</tr>
<tr>
<td>PA 856</td>
<td>Procedures and Diagnostics II</td>
<td>1</td>
</tr>
<tr>
<td>PA 857</td>
<td>Procedures and Diagnostics III</td>
<td>2</td>
</tr>
<tr>
<td>PA 858</td>
<td>Procedures and Diagnostics IV</td>
<td>2</td>
</tr>
<tr>
<td>PA 864</td>
<td>Pharmacology</td>
<td>2</td>
</tr>
<tr>
<td>PA 871</td>
<td>Medicine I</td>
<td>3</td>
</tr>
<tr>
<td>PA 872</td>
<td>Medicine II</td>
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<tr>
<td>PA 873</td>
<td>Medicine III</td>
<td>4</td>
</tr>
<tr>
<td>PA 874</td>
<td>Medicine IV</td>
<td>4</td>
</tr>
<tr>
<td>PA 880</td>
<td>Medical History and Documentation</td>
<td>3</td>
</tr>
<tr>
<td>PA 881</td>
<td>Medical Ethics</td>
<td>2</td>
</tr>
<tr>
<td>PA 882</td>
<td>Primary Care Applications</td>
<td>2</td>
</tr>
<tr>
<td>PA 883</td>
<td>Introduction to Clinical Rotations</td>
<td>1</td>
</tr>
<tr>
<td>PA 884</td>
<td>Business of Healthcare</td>
<td>2</td>
</tr>
<tr>
<td>PA 900</td>
<td>Pediatrics Clinical Practicum</td>
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<tr>
<td>PA 908</td>
<td>Behavioral Health Clinical Practicum</td>
<td>4</td>
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<tr>
<td>PA 910</td>
<td>Clinical Elective</td>
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<td>PA 920</td>
<td>Family Medicine Clinical Practicum</td>
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<tr>
<td>PA 940</td>
<td>Internal Medicine Clinical Practicum</td>
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<tr>
<td>PA 950</td>
<td>Internal Medicine Subspecialty Elective</td>
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<tr>
<td>PA 951</td>
<td>Women’s Health Clinical Practicum</td>
<td>4</td>
</tr>
<tr>
<td>PA 953</td>
<td>Surgery Clinical Practicum</td>
<td>4</td>
</tr>
<tr>
<td>PA 955</td>
<td>Surgical Subspecialty Elective</td>
<td>4</td>
</tr>
<tr>
<td>PA 957</td>
<td>Emergency Medicine Clinical Practicum</td>
<td>4</td>
</tr>
<tr>
<td>PA 958</td>
<td>Ambulatory Medicine Elective</td>
<td>4</td>
</tr>
<tr>
<td>PA 990</td>
<td>PA Medicine Capstone</td>
<td>1</td>
</tr>
<tr>
<td>PA 992</td>
<td>Public Health and Disease Prevention</td>
<td>1</td>
</tr>
<tr>
<td>PA 993</td>
<td>Osteopathic Manipulation Medicine for PAs</td>
<td>1</td>
</tr>
<tr>
<td>PA 998</td>
<td>Research and Evidence Based Medicine</td>
<td>1</td>
</tr>
</tbody>
</table>

2. Successfully complete a final evaluation.

Effective Summer 2021.
PART II - NEW COURSES AND CHANGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

ANS 801  Methods of Teaching Animal Science
Fall of every year. Spring of every year. 1(0-2) A student may earn a maximum of 6 credits in all enrollments for this course. RB: One year of graduate coursework and an interest in teaching, outreach, or extension at the college level. R: Open to graduate students in the Department of Animal Science.
NEW Techniques and approaches for developing and teaching animal science courses and assessing student learning.
Effective Fall 2020

FOR 215  Introduction to Wildland Fire
Spring of every year. 2(2-0) R: Open to undergraduate students in the Department of Forestry or approval of department.
NEW Fundamental processes of wildland fire behavior and management. National Wildfire Coordinating Group (NWCG) certifications S-130, S-190, and L-180 are granted upon successful course completion. Field trips required.
Effective Spring 2021

FOR 360  Forest Ecosystems, Carbon and Climate Change
Fall of every year. 3(3-0) P: WRA 101
NEW Forest ecosystem analysis and measurement, with a focus on policy and science of the global carbon cycle and climate change. Online course.
Effective Fall 2020

FOR 412  Wildland Fire
Spring of every year. 2(2-0) P: (FOR 404 or concurrently) or (IBIO 355 or concurrently) R: Not open to freshmen or sophomores.
Fire in wildland forest and grassland communities as a physical and ecological process. Fire history, culture, and management. Global perspectives, strategies for prevention and suppression of wildfires. Techniques for using prescribed fire. Field trips required.
DELETE COURSE
Effective Spring 2021

FOR 413  Wildland Fire Ecology and Management
Fall of every year. 3(3-0) P: (FOR 340 or concurrently) or (IBIO 355 or concurrently) RB: FOR 204
NEW Role of fire in regulating forest ecosystem distribution, composition, structure, and function. Field trips required.
Effective Fall 2020

HRT 430  Exploring Wines and Vines
Fall of every year. Spring of every year. 3(3-0) RB: Must be 21 years of age. R: Approval of department.
Consumer-oriented study of wine history, production methods, climatic influences, cultural impacts, social responsibility, and economic impact of wine industry as part of modern agriculture. Sensory evaluation and its relationship to food pairings. Field trip required.
Effective Fall 2014 Effective Spring 2019
COLLEGE OF ENGINEERING

BE 484  Water Resource Recovery Engineering
Spring of every year. 3(3-0) Interdepartmental with Environmental Engineering. P: BE 360 or approval of department R: BE 360 or (ENE 487 or concurrently) or approval of department
Open to juniors or seniors or graduate students in the College of Agriculture and Natural Resources or in the College of Engineering.
Municipal, industrial, and rural wastewater characteristics. Selection of best site- and management-specific treatment strategy, including the influence of governmental policy and societal needs.
Effective Fall 2019  Effective Spring 2020

CHE 301  Chemical Engineering as a Profession
Spring of every year. 1(2-0) P: (CHE 201 or concurrently) and completion of Tier I writing requirement RB: Junior standing in chemical engineering
Professional aspects of chemical engineering. Communication skills, professionalism and ethics, teamwork skills, contemporary engineering issues, career planning, project management, and industrial processes.
Effective Fall 2017  Effective Fall 2020

CHE 972  Viscoelasticity and Flow of Polymeric Materials
Spring of odd years. 3(3-0)
REINSTATEMENT  Time dependent and steady flow properties of polymeric materials related to molecular and structural parameters. Examples of polymeric blends and composites with thermoplastic and thermoset components.
Effective Spring 2021

EGR 593  Engineering Research Methods
Summer of every year. 1(1-0) R: Open to undergraduate students in the College of Engineering. Approval of department.
NEW  EGR 593 enhances a student's experiential education during the Engineering Summer Undergraduate Research Experience (EnSURE). Students selected to participate in EnSURE engage in full-time, graduate-level research mentored by faculty in the College of Engineering. Course includes regular writing assignments and weekly discussions of topics such as research methods, teamwork, ethics, academic writing, and presenting research.
Request the use of the Pass-No Grade (P-N) system.
Effective Fall 2020

EGR 893  Graduate Experiential Education
Fall of every year. Spring of every year. Summer of every year. 1(1-0) R: Open to graduate students in the College of Engineering. Approval of department.
NEW  EGR 893 enhances the experiential education of engineering graduate students engaged in faculty-mentored research or graduate-level internships in industry or government. Students will develop an individual development plan to guide their efforts during the term, including key milestones and deliverables appropriate to the research or internship and a discussion of how participating in EGR 893 aligns with their overarching goals for graduate study. Periodic written progress reports are required, as well as an appropriate final report or substantive product.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
Effective Fall 2020
EGR 993  Writing an Engineering Thesis or Dissertation
Fall of every year. Spring of every year. Summer of every year. 1(1-0) R: Open to graduate students in the College of Engineering. Approval of department.
NEW  EGR 993 supports graduate students in completing their thesis or dissertation and includes structured time for writing and peer-review. Weekly discussions of topics such as publication timelines; creating outlines; research support resources; receiving/providing feedback about academic writing; and MSU Graduate School formatting requirements. Designed primarily for on-campus graduate students in their final 1-2 semesters who will devote substantial time to writing the thesis/dissertation during the term; PhD students should have already passed the comprehensive exam. Request the use of the Pass-No Grade (P-N) system.
Effective Fall 2020

LYMAN BRIGGS COLLEGE

LB 155  Introduction to Quantitative Science and Research
Fall of every year. 3(2-3) P: (MTH 1825 or concurrently) or (MTH 103 or concurrently) P: MTH 103 or concurrently R: Open to freshmen in the Lyman Briggs College.
Exploration of fundamental chemistry, biology, physics, mathematics and statistics. Quantitative analysis and research.
Effective Spring 2014 Effective Spring 2020

LB 271  Organic Chemistry I: Medicinal
Fall of every year. Spring of every year. 3(3-0) P: CEM 141 or CEM 151 or CEM 181H or LB 171 R: Open to undergraduate students in the Lyman Briggs College. Not open to students with credit in CEM 251.
NEW  Common classes of organic compounds including their nomenclature, structure, bonding, reactivity, spectroscopic characterization, and the relationship of organic chemistry concepts as they are related to medicinal chemistry practices.
Effective Fall 2020

COLLEGE OF NATURAL SCIENCE

BLD 214L  Biomedical Laboratory Research Techniques
Summer of every year. 2(1-3) P: MTH 103 or MTH 116 or MTH 124 or approval of department P: MTH 103 or concurrently or MTH 116 or MTH 124 or approval of department
Basic techniques, skills and safety in biomedical research. Ethical conduct of research and regulatory principles such as Good Laboratory Practice. Maintaining a research notebook for legal and intellectual property purposes. Offered second half of semester.
Effective Fall 2016 Effective Fall 2019

BLD 313  Quality in Clinical Laboratory Practice
Fall of every year. Spring of every year. 3(3-0) P: (BLD 213L) and ((STT 201 or STT 200 or STT 231) and completion of Tier I writing requirement) P: ((BLD 121 or concurrently) and BLD 213L) and ((STT 201 or STT 200 or STT 231) and completion of Tier I writing requirement) RB: PHY 232
Concepts and principles of clinical laboratory analysis and the statistical evaluation of the data produced as related to quality.
SA: BLD 414, BLD 417
Effective Fall 2018 Effective Spring 2020

BLD 314L  Advanced Clinical Laboratory Methods
Fall of every year. Spring of every year. 1(0-3) P: BLD 213L P: BLD 213L and (BLD 324 or concurrently) RB: BLD 204 and BLD 324 RB: BLD 204 R: Open to students in the Biomedical Laboratory Science Major or in the Lyman Briggs Biomedical Laboratory Science Coordinate Major. Diagnostics assays across various disciplines within the clinical laboratory including hematology, immunohematology, coagulation, urinalysis, and molecular diagnostics. Data interpretations and problem solving skills. Diagnostics assays within the clinical laboratory including hematology, immunohematology, coagulation, urinalysis, and molecular diagnostics. Data interpretations and problem solving skills.
Effective Fall 2018 Effective Spring 2020
BLD 366  Infectious Diseases of East Africa
Summer of every year. Africa, Africa, Africa Africa 4(1-6) P: (BLD 213) or BLD 214L or (CEM 162 and BS 171) or (LB 145 and LB 172L) P: (BLD 213L) or BLD 214L or (CEM 162 and BS 171) or (LB 145 and LB 172L) RB: Pre-health professional undergraduate students with junior or senior status. R: Approval of department.
Biology and laboratory diagnosis of the most common infectious disease of the region. Health disparities and healthcare system organization. Effective Summer 2017 Effective Fall 2018

BLD 402  Advanced Clinical Chemistry
Fall of every year. Spring of every year. 4(4-0) P: (BLD 302 and BMB 401) or (BLD 302 and BMB 461 and BMB 462)
Differences in clinical laboratory testing results between normal and diseased populations. Metabolic and endocrine systems, acquired and inherited diseases, therapeutic drug monitoring and toxicology. Effective Spring 2017 Effective Fall 2018

BLD 890  Selected Problems in Clinical Laboratory Science
Fall of every year. Spring of every year. Summer of every year. 1 to 6 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Open to graduate students in the Clinical Laboratory Sciences major. R: Open to graduate students in the College of Natural Science or in the Biomedical Laboratory Diagnostics Program or in the Clinical Laboratory Sciences Major or in the Biomedical Laboratory Science Major. Non-thesis research for Plan B master's students. Request the use of ET-Extension to postpone grading. The work for the course must be completed and the final grade reported within 4 semesters after the end of the semester of enrollment. SA: MT 890 Effective Summer 2008 Effective Fall 2018

MTH 800  Quantitative Foundations for Machine Learning
Fall of every year. Lansing 3(3-0) Interdepartmental with Statistics and Probability. P: MTH 132 and MTH 133 or approval of department R: Open to graduate-student students. NEW Advanced calculus and linear algebra tools for machine learning algorithms. Effective Fall 2019

NSC 111  States of Mind Enhancing Skills and Wellbeing
Fall of every year. Spring of every year. 2 to 3 credits. R: Open to students. NEW Mindful states will be examined from both a personal and societal perspective as they relate to physical, mental and community health, ethical awareness, compassion, flourishing, resiliency, distractibility and peak performance. Effective Spring 2020

COLLEGE OF OSTEOPATHIC MEDICINE

PA 801  PEAK Study Skills
Summer of every year. 1(1-0) R: Open to students in the Department of PA Medicine. NEW Course will discuss efficiency in learning to maximize cognitive potential of students Request the use of the Pass-No Grade (P-N) system. Effective Summer 2021

PA 810  Clinical Human Anatomy
Summer of every year. 8(6-6) R: Open to students in the Department of PA Medicine. NEW Introduction to macroscopic human structure, landmarks, and spatial relationships with clinical correlations. Correct usage of clinical-anatomical language. Request the use of the Pass-No Grade (P-N) system. Effective Summer 2021
PA 828  Genetics  
Fall of every year. 2(2-0) R: Open to students in the Department of PA Medicine.
NEW  
Basic principles of human medical genetics
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 839  Pathophysiology  
Summer of every year. 2(2-0) R: Open to students in the Department of PA Medicine.
NEW  
Focuses on the study of human disease and abnormal processes, including frequency, significance, diagnosis and treatment
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 851  Physical Examination I  
Summer of every year. 3(2-1) R: Open to students in the Department of PA Medicine.
NEW  
Focuses on the development of physical examination skills needed to practice medicine as a PA utilizing a body systems approach
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 852  Physical Examination II  
Fall of every year. 3(2-1) P: PA 851 R: Open to students in the Department of PA Medicine.
NEW  
Focuses on the development of physical examination skills needed to practice medicine as a PA utilizing a body systems approach
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 853  Physical Examination III  
Spring of every year. 3(2-1) P: PA 852 R: Open to students in the Department of PA Medicine.
NEW  
Focuses on the development of physical examination skills needed to practice medicine as a PA utilizing a body systems approach
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 854  Physical Examination IV  
Spring of every year. 3(2-1) P: PA 853 R: Open to students in the Department of PA Medicine.
NEW  
Focuses on the development of physical examination skills needed to practice medicine as a PA utilizing a body systems approach
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 855  Procedures and Diagnostics I  
Summer of every year. 1(1-1) R: Open to students in the Department of PA Medicine.
NEW  
The performance of medical procedures and interpretation of diagnostic testing relevant to the body systems
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 856  Procedures and Diagnostics II  
Fall of every year. 1(1-1) P: PA 855 R: Open to students in the Department of PA Medicine.
NEW  
The performance of medical procedures and interpretation of diagnostic testing relevant to the body systems
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 857  Procedures and Diagnostics III  
Spring of every year. 2(1-1) P: PA 856 R: Open to students in the Department of PA Medicine.
NEW  
The performance of medical procedures and interpretation of diagnostic testing relevant to the body systems
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021
PA 858  Procedures and Diagnostics IV
Summer of every year. 2(1-1) P: PA 857 R: Open to students in the Department of PA Medicine.
NEW The performance of medical procedures and interpretation of diagnostic testing relevant to
the body systems
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 864  Pharmacology
Fall of every year. 2(2-0) R: Open to students in the Department of PA Medicine.
NEW Introduction to basic principles of pharmacology, toxicology, and selected drugs.
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 871  Medicine I
Summer of every year. 3(3-0) R: Open to students in the Department of PA Medicine.
NEW A systematic approach to the etiology, diagnosis, treatment, and prevention of clinical
disorders
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 872  Medicine II
Fall of every year. 4(4-0) P: PA 871 R: Open to students in the Department of PA Medicine.
NEW A systematic approach to the etiology, diagnosis, treatment, and prevention of clinical
disorders.
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 873  Medicine III
Spring of every year. 4(4-0) P: PA 872 R: Open to students in the Department of PA Medicine.
NEW A systematic approach to the etiology, diagnosis, treatment, and prevention of clinical
disorders.
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 874  Medicine IV
Summer of every year. 4(4-0) P: PA 873 R: Open to students in the Department of PA Medicine.
NEW A systematic approach to the etiology, diagnosis, treatment, and prevention of clinical
disorders.
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 880  Medical History and Documentation
Fall of every year. 3(2-1) R: Open to students in the Department of PA Medicine.
NEW Course focuses on patient interviewing techniques, a medical history, and documentation
of patient encounters.
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 881  Medical Ethics
Spring of every year. 2(2-1) R: Open to students in the Department of PA Medicine.
NEW Introduction to cultural awareness, sensitivity, ethical standards, and legal principles.
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 882  Primary Care Applications
Spring of every year. 2(1-1) R: Open to students in the Department of PA Medicine.
NEW Course is designed to expose students to a variety of health care related hospital and
community experiences.
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021
PA 883  Introduction to Clinical Rotations
Summer of every year. 1(1-0) R: Open to students in the Department of PA Medicine.
NEW
Prepares PA Medicine students for the transition from didactic learning to clinical applications of medicine.
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 884  Business of Healthcare
Summer of every year. 2(2-0) R: Open to students in the Department of PA Medicine.
NEW
Introduction to the economics of healthcare in the United States.
Request the use of the Pass-No Grade (P-N) system.
Effective Summer 2021

PA 900  Pediatrics Clinical Practicum
Fall of every year. Spring of every year. Summer of every year. 4 credits. R: Open to students in the Department of PA Medicine.
NEW
Course provides clinical exposure in pediatric medicine under the supervision of a clinical site preceptor.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Summer 2021

PA 908  Behavioral Medicine Clinical Practicum
Fall of every year. Spring of every year. Summer of every year. 4 credits. R: Open to students in the Department of PA Medicine.
NEW
Course provides clinical exposure in behavioral medicine under the supervision of a clinical site preceptor.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Summer 2021

PA 910  Clinical Elective
Fall of every year. Spring of every year. Summer of every year. 4 credits. R: Open to students in the Department of PA Medicine.
NEW
Course provides a focused exposure under the supervision of a clinical site preceptor.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Summer 2021

PA 920  Family Medicine Clinical Practicum
Fall of every year. Spring of every year. Summer of every year. 4 credits. R: Open to students in the Department of PA Medicine.
NEW
Course provides clinical exposure in family medicine under the supervision of a clinical site preceptor.
Request the use of the Pass-No Grade (P-N) system.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.
Effective Summer 2021
PA 940  Internal Medicine Clinical Practicum  
Fall of every year. Spring of every year. Summer of every year. 4 credits. R: Open to students in the Department of PA Medicine.

NEW  
Course provides clinical exposure in internal medicine under the supervision of a clinical site preceptor.  
Request the use of the Pass-No Grade (P-N) system.  
Request the use of ET-Extension to postpone grading.  
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.  
Effective Summer 2021

PA 950  Internal Medicine Subspecialty Elective  
Fall of every year. Spring of every year. Summer of every year. 4 credits. P: PA 940 R: Open to students in the Department of PA Medicine.

NEW  
Course provides clinical exposure in a selective subspecialty of internal medicine under the supervision of a clinical site preceptor.  
Request the use of the Pass-No Grade (P-N) system.  
Request the use of ET-Extension to postpone grading.  
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.  
Effective Summer 2021

PA 951  Women’s Health Clinical Practicum  
Fall of every year. Spring of every year. Summer of every year. 4 credits. R: Open to students in the Department of PA Medicine.

NEW  
Course provides clinical exposure in women’s health under the supervision of a clinical site preceptor with practical exposure to the evaluation and management of the prenatal through postpartum patient.  
Request the use of the Pass-No Grade (P-N) system.  
Request the use of ET-Extension to postpone grading.  
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.  
Effective Summer 2021

PA 953  Surgery Clinical Practicum  
Fall of every year. Spring of every year. Summer of every year. 4 credits. R: Open to students in the Department of PA Medicine.

NEW  
Course provides clinical exposure and skill development in a surgical setting under the supervision of a clinical site preceptor.  
Request the use of the Pass-No Grade (P-N) system.  
Request the use of ET-Extension to postpone grading.  
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.  
Effective Summer 2021

PA 955  Surgical Subspecialty Elective  
Fall of every year. Spring of every year. Summer of every year. 4 credits. P: PA 953 R: Open to students in the Department of PA Medicine.

NEW  
Course provides clinical exposure in a surgical subspecialty setting under the supervision of a clinical site preceptor.  
Request the use of the Pass-No Grade (P-N) system.  
Request the use of ET-Extension to postpone grading.  
The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.  
Effective Summer 2021
PA 957  Emergency Medicine Clinical Practicum  
**Fall of every year. Spring of every year. Summer of every year. 4 credits. R: Open to students in the Department of PA Medicine.**

**NEW** Course provides clinical exposure in emergency medicine under the supervision of a clinical site preceptor. Students will perform acute evaluation in the hospital emergency department setting.

- Request the use of the Pass-No Grade (P-N) system.
- Request the use of ET-Extension to postpone grading.
- The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.

Effective Summer 2021

PA 958  Ambulatory Medicine Elective  
**Fall of every year. Spring of every year. Summer of every year. 4 credits. P: PA 920 R: Open to students in the Department of PA Medicine.**

**NEW** Course provides clinical exposure in ambulatory medicine under the supervision of a clinical site preceptor.

- Request the use of the Pass-No Grade (P-N) system.
- Request the use of ET-Extension to postpone grading.
- The work for the course must be completed and the final grade reported within 2 semesters after the end of the semester of enrollment.

Effective Summer 2021

PA 990  PA Medicine Capstone  
**Summer of every year. 1(1-0) R: Open to students in the Department of PA Medicine.**

**NEW** Summation of clinical and didactic assessment of various patient populations to ensure PA student readiness for clinical practice of medicine.

- Request the use of the Pass-No Grade (P-N) system.
- Request the use of ET-Extension to postpone grading.
- The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.

Effective Summer 2021

PA 992  Public Health and Disease Prevention  
**Spring of every year. 1(1-0) R: Open to students in the Department of PA Medicine.**

**NEW** Course focuses on assessment of trends in public health, public health epidemics, disease prevention and patient counseling.

- Request the use of the Pass-No Grade (P-N) system.
- Request the use of ET-Extension to postpone grading.
- The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.

Effective Summer 2021

PA 993  Osteopathic Manipulative Medicine for PAs  
**Summer of every year. 1(1-1) R: Open to students in the Department of PA Medicine.**

**NEW** Course is an introduction to osteopathic manipulative skills and clinical knowledge leading to diagnosis and treatment.

- Request the use of the Pass-No Grade (P-N) system.
- Request the use of ET-Extension to postpone grading.
- The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.

Effective Summer 2021

PA 998  Research and Evidence Based Medicine  
**Fall of every year. 1(1-0) R: Open to students in the Department of PA Medicine.**

**NEW** Course introduces students to evidence-based medicine, research design concepts, and critical appraisal of the medical literature.

- Request the use of the Pass-No Grade (P-N) system.
- Request the use of ET-Extension to postpone grading.
- The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.

Effective Summer 2021
COLLEGE OF VETERINARY MEDICINE

PDI 870 Laboratory Animal Pathology
**Summer of odd years. Summer of even years.** 2(1-2) RB: Background in histopathology, veterinary medicine, and systemic pathology R: Approval of department.
Diseases and pathology of laboratory animal species including mice, rats, ferrets, rabbits, primates, and fish. Use of laboratory animals for toxicological pathology in industry.
Request the use of ET-Extension to postpone grading.
The work for the course must be completed and the final grade reported within 1 semester after the end of the semester of enrollment.
Effectively Summer 2018 Effective Summer 2020

PHM 481L Independent Undergraduate Laboratory Research
Fall of every year. Spring of every year. Summer of every year. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. RB: Human Biology, Neuroscience, Physiology, Biochemistry, Microbiology, Chemistry, Integrative Biology R: Open to undergraduate students. Approval of department.
NEW Research experience for undergraduates in laboratories of and under supervision of faculty in Department of Pharmacology & Toxicology.
Effective Fall 2020

PHM 801 Fundamental Principles of Pharmacology and Toxicology
Fall of every year. 3(3-0) R: Open to graduate students in the College of Natural Science or in the Department of Pharmacology and Toxicology or approval of department. R: Open to doctoral students in the College of Natural Science or in the College of Human Medicine or in the College of Osteopathic Medicine or in the College of Veterinary Medicine or in the Department of Pharmacology and Toxicology or approval of department.
Core principles of pharmacology and toxicology including pharmacokinetics, toxicokinetics (drug/toxicant absorption, distribution, metabolism, elimination, modeling), pharmacodynamics (drug-receptor and drug-enzyme interactions), and drug discovery.
Effective Fall 2016 Effective Spring 2018

PHM 811 Global Health: Pharmacology and Toxicology Perspective
Summer of every year. 2(2-0) P: PHM 350 or concurrently or approval of department RB: biology and/or pathology and/or toxicology R: Open to undergraduate students or graduate students or master's students or human medicine students or osteopathic medicine students or veterinary medicine students. Approval of department.
NEW General concepts of global health that are relevant to Pharm/Tox; understanding pharmacologic management of certain inflammatory disorders, antibiotic-resistant infections, community-acquired pneumonia, drug-induced hepatitis; impact of environmental toxins on health: organic and endocrine disrupting compounds, heavy metals, therapeutic drug monitoring, clinical cases.
Effective Summer 2020

PHM 819 Principles of Drug-Tissue Interactions
Fall of every year. Summer of every year. 2(2-0) RB: Undergraduate degree in biology, chemistry, or related field is recommended. R: Open to graduate students and open to lifelong graduate students. R: Open to graduate students in the Integrative Pharmacology Major or in the Pharmacology and Toxicology Major and not open to undergraduate students or lifelong undergraduate students. Approval of department. Not open to students with credit in PHM 801.
General principles relevant to the interaction of chemicals with biological systems. Topics include pharmacokinetics and/or pharmacodynamics.
Effective Fall 2017 Effective Summer 2020