



INTERNATIONAL
SPINE & PAIN
INSTITUTE

International Spine and Pain Institute (ISPI)

Fellowship in Pain Sciences

ISPI Fellowship in Pain Sciences Program

Program Director: Dr. Adriaan Louw PT, PhD, CSMT

There is a significant need for advanced, non-pharmacological treatment of pain, given the current pain and opioid epidemic and growing awareness regarding the complexity of persistent pain. As in medicine, the need to train a specialized, subgroup of clinicians to utilize advanced skills, necessitate advanced training, including fellowship level.

The ISPI-EIM pain fellowship is an 18-month plan of study blending various pain science content via online and onsite (blended) formats. This fellowship has been designed to allow working clinicians to enroll and complete an advanced level of training, yet continue with their professional and personal lives. Lectures, readings and articles are recorded and provided on an online platform, allowing students to complete didactic content from their home. This allows weekend lab-intensive classes to focus more on the hands-on (psychomotor) skills and help cut cost (travel and accommodation) in comparison to traditional weekend classes combining didactic and lab sessions.

Program Objectives:

1. The latest pain neuroscience related to a human pain experience
2. Clinical application of pain science including assessment and treatment
3. Advanced clinical reasoning in a biopsychosocial model
4. Multidisciplinary care for pain

Admission Requirements

1. All fellows must possess a current and valid license to practice in their respective profession. This license must not be under suspension, revocation, probationary status, or subject to disciplinary proceedings or inquiry.
2. If English is not the applicant's native/first language, the language of common use in clinical practice, or language used in the applicant's physiotherapy professional education, specified language proficiency requirements may be required.
3. All fellows must have current CPR certification.
4. Fellows must obtain additional coursework in the area of evidence-based practice if the EIM Fellowship Program determines that the applicant's background in this area is insufficient.
5. Fellows must obtain (2) letters of recommendation.

Curriculum

The ISPI Fellowship in Pain Sciences Program consists of 33 total credit hours of hybrid online and onsite learning. The student has 3 years (36 months) of active enrollment to complete the program. The curriculum consists of the following academic courses:

Therapeutic Pain Science Coursework

ISPI-TPS 6410	Therapeutic Neuroscience Education
ISPI-TPS 6100WI	Weekend Intensive I (TNE, Too Hot to Handle, and Neurodynamics)
ISPT-TPS 6110WI	Weekend Intensive II (Focus on Function, TNE Labs, Practical Application)
ITPI-TPS 6151A	Neurodynamics I
ISPI-TPS 6152	Too Hot to Handle
ISPI-TPS 6151B	Neurodynamics II
ISPI-TPS 6154	Everything Hurts
ISPI-TPS 6156	Business of Chronic Pain
ISPI-TPS 6155	Perioperative Neuroscience Education
ISPI-TPS 7180	Cumulative Capstone Examination

Credits: 13

Core Fellowship Coursework

PNEF 6410	Special Topics in Pain Neuroscience Education (4 cr)
PNEF 6410WI	Special Topics in PNE Weekend Intensive
RES 6110	Writing Case Reports & Case Series
PNEF 6110	Multidisciplinary and Interdisciplinary Approach to PNE
PNEF 6420	Advanced Clinical Practice
PNEF 7670	PSF Virtual Rounds
PNEF 6410TA	Teaching Assistant Role- Therapeutic Neuroscience Education
RES 7280	PSF Scholarly Project
PNEF 7690	Fellowship Mentored Clinical Practice
PNEF 7710WI	Capstone Weekend Intensive

Credits: 20

Total Credits: 33

ISPI 6410 Therapeutic Neuroscience Education
credits

4

Teaching people about pain can have a therapeutic effect. This course is designed to update attendees on the latest evidence and clinical application of therapeutic neuroscience education for patients in pain. Current best evidence has shown that neuroscience educational strategies utilizing neurobiology and neurophysiology are able to reduce pain, increase function, reduce fear and catastrophization, and improve movement and change cognitions and brain activation during pain experiences. Therapeutic neuroscience education changes patient beliefs regarding their pain, thus reducing the threat of pain. This course will discuss the evolution of therapeutic neuroscience education, why neuroscience education is needed in patient care and, more importantly, the clinical application and implementation of therapeutic neuroscience education for patients with acute, sub-acute and chronic pain. Special features include various metaphors, images, examples and case studies explaining neuroscience to patients in pain. In addition the class will cover clinical issues such as compliance, pacing exercise and activity, incorporation of therapeutic neuroscience education with traditional movement based therapy, billing and insurance reimbursement concerns and delivering therapeutic neuroscience education in busy, time-constrained clinical environments. This class is a must for all professionals dealing with patients in pain.

Course Objectives: At the end of the course the student will be able to or will have completed:

1. Discuss the latest evidence for therapeutic neuroscience education
2. Demonstrate the clinical ability to apply therapeutic neuroscience education to clinical practice with the use of at least one metaphor shared in class
3. List at least half of the output systems discussed in class and their response in a chronic pain patient
4. List potential strategies to implement therapeutic neuroscience into clinic practice regarding time, staff, billing and traditional therapeutic treatments
5. Design a treatment plan for a chronic pain patient based on output system dysfunctions with correct pain neurophysiological reasoning behind the treatment with information provided in the course

ISPI 6151a/b A Study of Neurodynamics I & II

2 credits

This two part course is designed to update participants on the latest evidence and clinical application of neurodynamics. Neurodynamics is the physical ability of the nervous system allowing it to move, slide, glide and accommodate human movement and function. Compared to more traditional manual therapy models focusing on joints and muscles, neurodynamics is new and vitally important in restoring normal movement and function. To understand the physical movement of nerves, neuroscience knowledge is explored to understand how pain works from a neurobiological and neurophysiological perspective. This course will discuss the latest research in the use of neurodynamic tests for examination as well as treatment. Mounting evidence supports the use of neurodynamics in various traditional orthopedic based disorders such as low back pain, radiculopathy, plantar fasciitis, lateral epicondylitis, whiplash associated disorders, neck pain, carpal tunnel, post-surgery, ankle sprains and more. The didactic coursework will prepare attendees for the weekend intensive lab sessions. Following the lab session on the weekend intensives, the course will conclude with the clinical application of the neurodynamic tests and treatments associated with the course. This course adds the important handling skills component for healthcare providers treating patients with pain.

Course Objectives: At the end of the course the student will be able to or will have completed.

1. Review current evidence and understanding of neuroanatomy and neurogenic pain related to evaluation and treatment of neurodynamics through attending lecture and reviewing course manual
2. Develop a clinical working knowledge of neurodynamics
3. Develop an understanding of the importance of physical testing and handling of people in pain
4. Be updated on the latest evidence, both biological and clinical trials, of neurodynamic tests and treatments in a variety of pain-related conditions
5. Differentiate neurodynamic treatment principles for various clinical examples based on lecture material and course manual in class discussion
6. Merge neurodynamic information and concepts into other paradigms of examination and treatments of musculoskeletal conditions
7. Develop a base knowledge of neurobiology to allow for practical tests, examination and treatments in weekend intensive lab sessions

ISPI 6152 Too Hot to Handle

1 credit

Many patients seeking help for pain are simply “too hot to handle.” Modern pain science referred to this as allodynia and/or hyperalgesia. Nowhere is this more evident than Complex Regional Pain Syndrome (CRPS). Using CRPS as a template, this course will feature various aspects of CRPS including differences between CRPS 1 and CRPS 2, clinical presentation and diagnosis, current epidemiological factors and risks associated with the development of CRPS to discuss hypersensitization of the nervous system. In the last 10 years, knowledge of hypersensitization, including CRPS, has increased rapidly leading to new advances in physical treatment. Now patients with hypersensitization can not only be managed, but treated effectively and returned to normal function. In addition the three main pathobiological processes currently thought to be the main issues with CRPS, and general hypersensitization, will be discussed. These are aberrant inflammatory mechanisms, vasomotor issues and neuroplastic changes in response to pain. This class will feature an extensive review of treatments based on the latest evidence for treating patients with CRPS and hypersensitization. Included are graded motor imagery, sensory discrimination, graphesthesia and neuroscience education. Various examination and treatment techniques will be discussed allowing preparation for the weekend intensive lab sessions. This course is a must for healthcare providers working in a variety of clinical settings dealing with CRPS or any patients displaying a heightened sensitization to physical movement and handling.

Course Objectives: At the end of the course the student will be able to or will have completed.

1. Be able to understand the pathobiology of the development of hypersensitization in chronic pain
2. Be able to recognize the current criteria for the diagnoses of CRPS
3. Be able to identify bio-psycho-social factors associated with the development of hypersensitization
4. Be updated on the latest evidence based approaches for managing patients with hypersensitization
5. Be able to apply the information from the educational session into clinical practice
6. Increase sensory discrimination and proprioception to restore sensory and motor mapping
7. Develop a base knowledge of hypersensitization to allow for practical tests, examination and treatments in weekend intensive lab sessions

ISPI 6100WI Weekend Intensive I: Neurodynamics and Too Hot to Handle
credit

1

This weekend intensive serves as the practical application of the neurodynamics and too hot to handle courses. On day 1, attendees will practice and develop skills in the physical examination of a sensitized nervous system. Practical sessions focus on the main upper extremity nerves (median, radial and ulnar), trunk, head and lower extremities, including both lumbar and lumbosacral tracks. Practical sessions include identifying and palpating peripheral nerves, active and passive neurodynamic tests as well as treatments for the sensitive nervous system. Day 2 focuses on desensitization of the nervous system. First, attendees will practice and learn easy-to-follow strategies to teach people about pain, including why they are so sensitive. This practical application of therapeutic neuroscience education will prepare patients for treatments aimed at desensitization of a hypersensitive nervous system. Prior to desensitization, attendees will practically test various aspects associated with sensitization, including laterality, two point discrimination, body diagram drawings, localization of stimulus and graphesthesia. Treatments will include retraining left-right discrimination, motor imagery/visualization, localization, sensory discrimination, graphesthesia and mirror therapy.

Course Objectives: At the end of the course the student will be able to or will have completed.

1. Locate and palpate peripheral nerves in upper limb and lower extremity on lab partners using course manual and with instructor assistance
2. Demonstrate upper limb, trunk, lumbar and lumbosacral neurodynamic tests performed on lab partners after demonstration from instructor(s) and with use of manual
3. Demonstrate upper limb, trunk, lumbar and lumbosacral neurodynamic treatments performed on lab partners after demonstration from instructor(s) and with use of manual
4. Choose appropriate neurodynamic test and treatment for clinical application to at least 1 of 8 written case studies presenting to class for discussion using course teachings and course manual.
5. Practice and demonstrate an ability to explain nerve sensitization to patients in pain
6. Skillfully perform sensorimotor testing of hypersensitization on lab partners using course manual and with instructor assistance
7. Practice and perform all the treatments associated with graded motor imagery on lab partners using course manual and instructor assistance

ISPI 6154 Everything Hurts

1 credit

Many chronic pain sufferers are diagnosed with widespread, diffuse, and non-specific pain in conditions like fibromyalgia, chronic fatigue syndrome, metabolic disorder and Lyme disease. Current neuroscience is pointing a shared mechanism of brain processing (pain neuromatrix) and significant alterations in biological systems such as the immune and endocrine systems in these patient populations. Collectively, these conditions affect approximately 5% of the population - or more than 15 million Americans. Research has shown that treatments such as cardiovascular exercise, strengthening exercise, membrane stabilizing drugs and education (especially cognitive behavioral therapy) is helpful in treating widespread pain. But how does it work? How can therapy help patients with widespread pain? This class will discuss the epidemiology and etiology of conditions like fibromyalgia as well as the current medical model for treating widespread pain and especially the deficiencies in this model. The class will focus on the new neuroscience view of widespread pain, including the brain's processing of pain, nerve sensitization, neuroendocrine and immune changes in response to pain, changes in motor function, sleep and more. Evidence-based treatments such as therapeutic neuroscience education, aerobic exercise, pacing, graded

exposure, goal setting and various other strategies such as relaxation, breathing and sleep hygiene will be discussed in patients with widespread pain.

Course Objectives: At the end of the course the student will be able to or will have completed.

1. Be updated on the latest evidence for treating widespread pain
2. Develop a greater understanding of the neuroscience, neuroendocrine and immune changes associated with widespread pain
3. Be able to explain widespread pain to patients utilizing therapeutic neuroscience education
4. Develop a comprehensive movement, pacing and graded exposure treatment plan for patients with widespread pain
5. Be able to apply all strategies and knowledge to clinical practice.

ISPI 6101WI Focus on Function

1 credit

In recent years, pain neuroscience from a therapeutic perspective, has gained considerable evidence, especially teaching people more about their pain. Current best-evidence shows that therapeutic neuroscience education improves pain ratings, function, pain catastrophization, physical movement and cost of healthcare utilization. Clinically there is a shift whereby more and more clinicians are gaining experience in teaching people more about pain. This, however, is a good starting point, but not the end-point. The ultimate expression of recovery is behavior change, or return to physical confidence. Following the initial pain education, clinicians now need to embrace and impart additional strategies such as goal setting, pacing, graded exposure and behavioral change leading to a functional, empowered patient being able to resume a fulfilled meaningful life. This course bridges the gap from initial pain education to independence. Through lectures, case studies, group sessions, clinical application and motivational interviewing, clinicians will develop skills aimed at true behavioral change.

Course Objectives: At the end of the course the student will be able to or will have completed.

1. Advance their knowledge and clinical ability to perform therapeutic neuroscience education
2. Problem solve various barriers to reconceptualization regarding therapeutic neuroscience education
3. Utilize motivational interviewing and goal setting to develop a structured plan of care to foster behavioral change
4. Develop and implement pacing and graded exposure of various daily activities and exercise to people with persistent pain
5. Identify, discuss and address issues related to fear-avoidance and kinesiophobia for people recovering from pain-related fear and limited function
6. Develop strategies to apply course material into clinical practice

ISPI 6155 Perioperative Therapeutic Neuroscience Education

1 credit

This course class will examine lumbar surgery and knee replacements from a neuroscience perspective, including why so many patients suffer with pain after surgery, patient beliefs about surgery as well as how surgeons prepare patients for surgery. This class will feature an extensive neuroscience education section, which will help patients prior to surgery, immediately post-op and subsequently in the acute and sub-acute postoperative phase. Preoperative education has shown some effect in altering anxiety, stress and fear associated with surgery. This preoperative neuroscience education program created by physical

therapists has recently been developed and has not only shown immediate post-education improvements in psychometric measures, beliefs and expectations for surgery and physical movements, but also a significant reduction of brain activity associated with painful tasks in patients scheduled for lumbar surgery. Additionally, preoperative neuroscience education has shown superior outcomes following surgery compared to patients receiving traditional surgeon led education in regard to back pain, leg pain, fear, catastrophization, function and postoperative healthcare utilization. Spinal surgery and knee replacements in the US are increasing. Outcome data indicates nearly 40% of patients experience persistent pain and disability following lumbar surgery. Postoperative rehabilitation following lumbar surgery has shown little efficacy in decreasing postoperative pain and disability, and it has been shown that patients are typically not sent to physical therapy following lumbar surgery. For knee replacements, recent studies have highlighted the issues of central sensitization associated with knee arthritis and knee replacement, which has pain scientists now developing a similar pain-science approach to knee replacements. This class introduces participants to the development of the preoperative neuroscience education program, the content, delivery methods and clinical application of such a program for lumbar surgery, as well as the adaptation and utilization of a new knee replacement program. The educational model will then be discussed within the realms of a postoperative movement based approach to exercise and range of motion.

Course Objectives: At the end of the course the student will be able to or will have completed.

1. List two reasons why a new bio-psycho-social treatment approach is needed to address pain in lumbar surgery and knee replacements.
2. Define the steps in the development and validation process of the preoperative neuroscience education program for lumbar surgery patients and now knee replacements.
3. Articulate the use of the content and delivery methods for the preoperative neuroscience educational program for use with preoperative lumbar surgery patient during the clinical application time in class.
4. Articulate the use of the content and delivery methods for the preoperative neuroscience educational program for use with preoperative knee replacement patient during the clinical application time in class.
5. Restate the general findings of the research showing preoperative neuroscience educational treatment program produces superior results to the biomedical model utilized by US spine surgeons for patients undergoing lumbar surgery.
6. Integrate the majority of the concepts from the therapeutic neuroscience educational session into clinical practice to fellow participants utilizing case scenarios.

ISPI 6156 Business of Chronic Pain

1 credit

This course combines two worlds – pain science and business. It is estimated that more than 80 million Americans are affected by some form of chronic pain. This number is ever increasing. This increase of chronic pain is associated with increased utilization of healthcare dollars and added burden on healthcare providers, including physical therapists. All of this is in lieu of healthcare reform. Emerging research into neurophysiology and neurobiology of pain clearly shows that movement and bio-psycho-social professions such as physical therapy are ideal to treat these patients. The increase in chronic pain and general dissatisfaction by patients with care provided creates a unique business opportunity for physical therapists. Additionally, advanced therapeutic treatments for pain, such as therapeutic neuroscience education, graded motor imagery, pacing, graded exposure, exercise and more will become increasingly desirable due to its low cost and it's empowerment of the patient. This course will focus heavily on the use and clinical implementation of pain sciences in various therapeutic realms such as private practice,

outpatient rehabilitation, inpatient acute care, large hospitals, etc. Course work includes marketing chronic pain to healthcare providers, third-party payers and patients, time-management, compliance, home-exercises, staff development, development of a pain program, billing documentation, outcome measures and more. The evidence for pain science is ever-increasing, but has to be “taken to the clinic.” This course is a must for everyone interested in helping people in pain clinically.

Course Objectives: At the end of the course the student will be able to or will have completed.

1. Understand the epidemiological issues associated with chronic pain, including increased patient dissatisfaction
2. Develop an understanding how the pain epidemic is impacting clinical practice, including economical issues and burnout
3. Be updated on the latest evidence and understanding of how a movement, bio-psycho-social and neuroscience approach is needed to take assist patients with persistent pain
4. Be updated on the contents of a best-evidence pain management program
5. Identify opportunities for the development, implementation and marketing of such a pain program to other healthcare providers and the public
6. Utilize material, strategies and concepts from the pain certification to develop pain programs in a variety of clinical settings and patient populations
7. Apply the information from the educational session into clinical practice

ISPI 7180 TPS Program Capstone Project & Examinations Capstone 1 credit

This capstone course consists of the final project and examination process for Therapeutic Pain Specialist Certificate Program students. TPS students will complete a final comprehensive written examination that focuses on each component of the TPS curriculum. Students also complete a comprehensive capstone project given by the Program Director to demonstrate competency in selected pain science applications.

PNEF 6410 Special Topics in Pain Neuroscience Education- online, faculty-led 4 credits

The TPS program focuses heavily on pain neuroscience education (PNE). In line with current best-evidence PNE is only one aspect of a potentially effective pain management program.^{4,5} In line with various randomized clinical trials and recent systematic reviews on PNE, ISPI teaches the concept of PNE+, indicating PNE best be served clinically by combining it with other proven strategies in treating people with pain versus a stand-alone treatment. The most recent systematic review highlighted PNE delivered in a combination with a variety of various other therapeutic treatments.

• Various additional aspects of pain management is dealt with in the TPS, but in this 12 week, self-paced, faculty moderated course, and students delve into 12 specialized pain topics to deepen their knowledge related to these special topics. (Following the first year of the TPS program, graduates were surveyed as to which specialized topics they'd want to see more information on. The following list is based on graduate feedback). Each week contains six videos, six handouts and 12 articles. For fellowship, this content accounts for approximately 4-6 hours of study per week).

Special topics are:

1. Sleep Hygiene
2. Aerobic exercise
3. Goal setting
4. Nutrition
5. Relaxation, meditation and mindfulness
6. Pharmacology
7. Emotional wellbeing: Coping Skills, Humor and Spirituality

8. Manual therapy
9. Breathing and biofeedback
10. Safe, healing environment and Social Interaction
11. Journaling, Art and Expressive Writing
12. Movement Therapies: Thai Chi™, Yoga, Aquatic Therapy, etc.

The PNE+ specialty topics are developed by senior ISPI faculty in conjunction with outside “specialists” contracted for the development of the various topics, i.e., physician for the pharmacology part; dietitian for the diet part, etc. Upon completion of the PNE+ module, students complete a comprehensive online quiz requiring an 80% pass rate to move on to the next module.

RES 6110 Writing Case Reports & Case Series- online, self-directed 1 credit

This four-week self-paced, online course is designed to improve knowledge regarding the importance of case reports/series in the medical literature and provides the foundation of the skill-set needs as Fellows-in-Training (FiT) work towards completing their own original case report or case series. This module is borrowed from the EIM AAOMPT fellowship. This course reviews the steps involved in completing a case report suitable for publication. This involves examining foundational material and critiquing the initial submission of a published

case report. Learning the process of producing a meaningful case report along with the ability to critically appraise other published reports will improve the student’s foundational knowledge as an evidence-based clinician.

- For the fellowship, a student will be required to complete a case report or case series suitable for publication.

PNEF 6110 Multidisciplinary and Interdisciplinary Approach to PNE- online, faculty-led 1 credit

Chronic pain is larger than one approach and larger than one profession. At ISPI we believe, and current best-evidence supports, multi- and interdisciplinary care and building of such relationships are the future of truly helping people with persistent pain. Both multi- and interdisciplinary care related to pain management is severely lacking in the US healthcare system. This four-week, faculty-led session will explore the evidence, development and implementation of a multi- and interdisciplinary approach to pain. This session will explore the various different team members; their contributions, strengths and weaknesses associated with multi- and interdisciplinary care.

PNEF 6420 Advanced Clinical Practice- online, faculty-led 4 credits

The cornerstone of a fellowship is advanced clinical reasoning, advanced clinical practice and mentorship. A significant part of the ISPI-EIM pain fellowship will constitute virtual rounds. The virtual rounds constitute the clinical mentorship of the program. In order for students to be able to present, defend and discuss their cases for the virtual rounds, students in the advanced clinical practice module is exposed to a comprehensive case-based learning experience led by senior ISPI faculty, as well as invited faculty for specific cases. Senior faculty present a variety of cases and systematically describe, discuss and demonstrate their reasoning process, tests, treatments and progression in these cases. During the eight week advanced clinical practice, eight different cases will be showcased via online videos, written content and supportive literature for the case.

During the eight-week class, students will be involved in comprehensive online discussions regarding the various cases and moderated by faculty.

PNEF 7670 PSF Virtual Rounds- online, faculty-led

6 credits

The clinical mentorship for fellowship occur during the final 16 weeks of virtual rounds. In this module, students record and present to peers and faculty:

- Subjective examination of a patient (video upload and share).
- Physical examination of a patient (video upload and share).
- Treatment of a patient (video upload and share).

Treatment progression (video upload and share).

- During the 16-week program, students will each present four cases for peer review and feedback.
- Each upload and presentation will be graded and a student will need a minimum score of 80% to pass the virtual rounds module.

PNEF 6410TA Teaching Assistant Role- Therapeutic Neuroscience Education 0 credits

During the one-year fellowship, FiT students are required to be a moderator for the PNE class for the TPS/fellowship. FiT students will be allocated to one of the four annual cohorts for PNE and will be required to moderate a group of 10-15 students for six weeks. The FiT will monitor the group discussions regarding the various posted questions, facilitate and answer questions; provide necessary references/resources as part of their replies.

This task will allow FiT students to not only be students, but take on the roles of mentor and teacher, thus deepening their own learning experience.

RES 7280 PSF Scholarly Project- ongoing

1 credit

All fellowship students are required to develop and prepare a scholarly project with the intent to publish.

- For fellowship level, students will be encouraged to prepare a case study or a case series pertaining to pain science.
- Each FiT will be assigned to a senior ISPI faculty with significant experience in preparing and publishing academic papers, including case studies and case series.
- Case studies and case series are chosen due to their relative ease of completion versus more comprehensive research and to facilitate clinical discussion and application of pain sciences.
- The exact topic for the case study or case series will be chosen by the student based on their current clinical practice, with guidance from their advisor.
- Even though publication of the case study or case series is not needed to fulfill fellowship requirements, ISPI aim to have students aggressively pursue publication of their work.

PNEF 7690 Fellowship Mentored Clinical Practice- ongoing

1 credit

In line with course PNEF 6110, during this four-week session, students have to do a clinical observation (four hours per week) with four professionals from a provided list – i.e., surgeon, pharmacist, massage therapist, chiropractor, psychologist, etc. Upon completion of the observation, each student will complete an extensive survey showcasing various aspects of that profession as it pertains to chronic pain (i.e., strengths, weaknesses, opportunities for collaboration, etc.). These reports are uploaded on a FiT discussion board for the students, moderated by faculty and allow for discussion of the various aspects of their multi- and interdisciplinary care experiences.

PNEF 7710WI Capstone Exam and Weekend Intensive

1 credit

The final weekend intensive will serve as means for students to review, question and/or discuss any content covered in the pain fellowship. Students will also be required to:

- Present their PNE Capstone PowerPoint.
- Present their scholarly project to their peers and faculty.

On day two of the final weekend intensive, students will also undergo the official ceremony of graduating and being presented with their fellowship certificate.