DOCTOR OF ATHLETIC TRAINING

APPLIED RESEARCH PROJECT (ARP)
GUIDE
Overview and Purpose of the Applied Research Project

The goal of the ARP is to advance practical knowledge in athletic training based on applied research and analysis. Students will identify a project of interest that is applicable to their work setting and learn the process of identifying a problem, researching solutions, implementing change, and measuring outcomes. The ARP may not always result in a publishable manuscript, but should provide the student with an understanding of the quality improvement and/or research process.

Applied Research Project Options

Students in the DAT have 3 primary options to complete their ARP requirements, the quality improvement option, case study, or the original research option. Each option will follow the progression of the ARP courses and culminate in an ARP presentation and written paper.

Option 1: Quality Improvement Project

The quality improvement (QI) project requires that students identify quality gaps in their healthcare system and address these gaps through formal methods. All of the QI projects follow the model of improvement that focuses on answering the questions of what we are trying to accomplish?, how will we know that a change is an improvement?, and what changes we can make that will result in improvement?, as well as using the plan-do-study-act (PDSA) cycle to test change ideas. Students engaging in the QI project will create and implement a feasible improvement project for their local system that is related to athletic training practice and follows the model of improvement. These projects can cover any area of athletic training practice, including clinical, administration, or education areas.

Along with the model of improvement, students engaged in QI project will use of traditional QI methodologies such as the STEEEP and SMART principles, techniques to create effective QI teams, and process modeling tools, such as brainstorming, flow charts, and cause-and-effect diagrams. The final QI project will be presented in written format consistent with the Standards for QUality Improvement Reporting Excellence (SQUIRE Guidelines).

Clinical Quality Improvement Project: This option will address a QI topic of interest proposed by the student about a quality gap that the student has identified in his/her clinical practice system. This QI project will clearly detail the system quality gap, study and implement quality solutions to improve the system using QI methodologies, and evaluate the project outcomes.

Educational Quality Improvement Project: This option will address a QI topic of interest proposed by the student about a quality gap that the student has identified in his/her education system. The educational QI project does not only apply to the didactic classroom setting; this option may be applied for a variety of educational strategies and/or settings. Examples of an
educational QI project include, but are not limited to, educational strategies to enhance clinicians’ knowledge and/or clinical practice behaviors, educational techniques implemented throughout the didactic classroom or clinical experience settings, and educational strategies to promote patient knowledge and awareness. This QI project will use quality improvement methodologies to identify the educational gap, implement solutions, and analyze the outcomes.

**Option 2: Case Study**

Clinical case studies are a forum for clinicians to share their experiences in managing patients with unique clinical presentations or responses following treatment or validating the best available evidence in the clinical setting to determine effectiveness. The Doctor of Athletic Training program will use a model developed by McKeon, Medina McKeon, and King (*IJATT*, 2014) that includes a continuum of exploration and validation case studies that can foster improved clinical decision-making. Students considering this option for the ARP should be aware that the success of this option will depend on the ability for the student to evaluate or manage the condition of interest when in the ARP sequence. For example, progress may be hindered or delayed if a student plans to undertake a validation case study on ankle rehabilitation and no patients with ankle injuries are evaluated during the study period.

**Exploration Case Studies:** These case studies generally include a review of a patient or patients (case series) with a unique clinical presentation, rare comorbidity, or treatment outcome that allow for the discovery of new insights into a diagnosis or treatment. The goal of exploration case studies is to share information about this unique presentation or response with other clinicians.

**Validation Case Studies:** These case studies stem from the use of the best available evidence described in clinical trials, systematic reviews, meta-analyses, clinical prediction rules or critically appraised topics. In this model, the student would validate the evidence in their own clinical practice setting, using an n of 1 study approach.

**Option 3: Original Research Project**

Students choosing the original research project option will conduct a study in conjunction with an AT faculty member in that faculty member’s area of expertise. This option can include 1) **faculty-directed original research**, 2) **secondary analysis of aggregate databases** (e.g., AT-PBRN, NCAA ISS, CPSC, NEISS), and 3) **systematic review or meta-analysis** of a clinical question.

**Faculty Directed Original Research:** Students electing to pursue research option 1 have a variety of focused research project opportunities. Selected research projects have been provided which align with the faculty’s areas of research focus and expertise. Faculty may have priority projects that they may encourage students to pursue. Faculty directed research is intended to provide the student with a well supervised and productive research experience. Furthermore, this is intended to help establish a focused and on-going line of AT research identity for the ATSU Athletic Training Program. Students wishing to pursue research option 1 using a topic that is not
identified in the Research Project Opportunities document must identify an AT faculty member who is willing to advise the project. If no athletic training faculty member is willing to advise the topic, the student may not use the topic in his or her research. The end result of this research option should be a quality study that is worthy of presentation and publication. Authorship order and the student’s contribution to the project will be discussed and decided upon by the faculty advisor and the student.

**Secondary aggregate database analysis:** Publically and privately available aggregate databases or registries available for use in research. Such databases typically contain parameter and measured data. Students may ask a clinically relevant research question that utilizes an aggregate database to perform a secondary analysis.

**Systematic review or meta-analysis:** These studies aim to answer specific questions, rather than present general summaries of the literature on a topic of interest. The questions addressed by these reviews are the same as those posed by the primary researcher. However, the difference is that primary research must exist on the topic to make conducting a review worthwhile. Clinical questions should use the PICO format and contain: 1) the specific population that will be investigated, 2) the intervention being evaluated, 3) the comparison or control under scrutiny, and 4) the outcome of interest. A systematic search for research is one of the major differences between a traditional literature review and a systematic review. The aim of the systematic review is to identify as many studies on the topic of interest as is reasonably possible. To aid in this, a comprehensive search strategy is developed and documented in the review protocol prior to commencement.
Applied Research Project Course Overview

The ARP foundation includes the following courses:

**ATRN 9001: Analyzing the Problem**
This course is the first in a series of four courses designed to assist you with the development of an applied research project (ARP) through the stages of defining a problem through project dissemination. Analyzing a problem you encounter in your practice and understanding the past and current literature around your desired project area is crucial to the development of a sound project. Therefore, the purpose of this course is to provide you with the knowledge and skills to successfully analyze and define a problem, review the literature around your chosen ARP topic and write a focused review of literature, which will serve as a foundational paper for your ARP.

**ATRN 9002: Proposing a Solution**
This course is the second in a series of four courses designed to assist you with the development of an applied research project (ARP) through the stages of analyzing the problem to project dissemination. The purpose of this course is to provide you with the knowledge and skills to develop and present the proposal for your required ARP. The proposal is crucial for the success of your ARP, as it describes in detail the ways in which you will go about evaluating the solution to the problem or proposing the methodological details of your study. By the end of this course, you will have completed your ARP proposal and will present your project to your ARP advisor and submit your application to the IRB, if applicable.

**ATRN 9003: Implementing and Evaluating the Solution**
This course is the third in a series of four courses designed to assist you with the development of an applied research project (ARP) through the stages of analyzing the problem to project dissemination. The purpose of this course is to provide you with the knowledge and skills to continue to implement a solution to your problem, collect data, and analyze your findings. Additionally, this course will help you to develop and implement an analysis plan for your ARP, based on previous methodological and statistical courses, and write the majority of your evaluation or results section so that you will be ready to complete your final manuscript and prepare it for dissemination in the next course.

**ATRN 9004: Completing and Disseminating the Project**
This course is the fourth and final course in a series of four courses designed to assist you with the development of an Applied Research Project (ARP) through the stages of analyzing the problem to project dissemination. The purpose of this course is to provide the knowledge and skills needed to successfully complete your ARP manuscript, and to identify possible strategies for the dissemination your research findings through means, such as a formal report, abstract presentation, or manuscript submission.

**Developing the Applied Research Project**
It is essential that you realize that the ARP is a work in progress, in the sense that it starts with the first DAT course and continues throughout the completion of the program of study.

By design, the DAT program prepares its graduates to practice and serve as advanced leaders, educators, researchers, and contributors to athletic training. A.T. Still University faculty and resources are not the only sources of information and support available as you progress through the program. Your cohort, peers, colleagues, and many others, including family, will contribute greatly to your academic success.

Appendix A provides a timeline of ARP requirements throughout the process.

**Applied Research Project Important Notes to Consider**

You cannot use a research project you are already involved with at your institution of employment or a project your institution is already conducting to fulfill your ARP requirement. If you have questions about this please contact your ARP advisor.

If you do not successfully pass a course you will not move forward in the next course of the ARP.

It is your responsibility to keep your advisor(s) aware of how your data collection and ARP are progressing throughout the entire ARP process.

All ARP final manuscripts will be made accessible to ATSU faculty, students, staff, and alumni. Please do not propose an ARP that you cannot or do not feel comfortable sharing with the ATSU community.

Utilize the ATSU Online Writing Center for assistance with grammar and general readability as your facilitator and other ARP committee members will not provide this service; this is your responsibility.

Please note that students are responsible for all costs incurred to complete the ARP. Therefore, ensure you plan and budget for the project or choose a project that accommodates your available financial resources.

Students must follow the ATSU General Order on Intellectual Property 10-208.
**Applied Research Project Advisor**

Students will be provided an advisor from the ATSU faculty to assist in developing and submitting the ARP Proposal. The relationship you develop with these faculty member(s) in the DAT program will likely extend well beyond the completion of your ARP and doctorate degree.

**Student and Advisor Responsibilities**

**Student will:**
- keep in contact with the ARP adviser at least twice per month, to clarify questions or concerns and to ensure timely and quality progress towards completion,
- cite all sources in full,
- submit all work as Microsoft® Word® documents,
- use only your ATSU email address for communication with facilitator and committee members,
- submit a copy of all draft documents (e.g. Review of Literature, ARP Proposal, IRB Application, and other documents as determined) to your adviser for review and comment,
- on receiving comments in summary from your adviser, incorporate or otherwise address them as needed, ask questions of your committee, and revise ARP documents,
- submit the final ARP documents to your adviser for review and signatures, via email (e.g. ARP Proposal, IRB Application, and ARP Manuscript),
- successfully complete (with passing grades) all ARP courses,
- abide by the ethical standards set forth by the ATSU IRB.

**The ARP advisor will:**
- provide feedback (within ten working days) in relation to tasks associated with completing the ARP,
- maintain regular (at least twice per month) contact with student,
- utilize only the ATSU email address system to correspond,
- work in collaboration with your ARP committee to provide feedback and direction on your ARP and all ARP documents,
- not provide editing service.

**The ARP co-advisor (if applicable) will:**
- provide feedback on student work to the facilitator (within ten working days) related to tasks associated with completing all phases of the ARP,
- be enrolled as a teaching assistant in all courses within the ARP course series that the student is enrolled and assist as needed,
- not provide editing service.

**Appendix A: ARP Timeline Template**

This document has been developed for your use to assist in organizing your project and the associated requirements.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
</tr>
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<tbody>
<tr>
<td><strong>Student begins ATRN 9001: Analyzing the Problem</strong></td>
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<tr>
<td>Student send adviser(s) a copy of the Review of Literature</td>
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<tr>
<td>Adviser(s) return Review of Literature to ARP facilitator with feedback/comments, who in turn summarizes the feedback to provide to the student. Both student and facilitator finalize the Review together.</td>
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<tr>
<td>Student completes all requirements according to the ATRN 9001 syllabus.</td>
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<td><strong>Student begins ATRN 9002: Proposing a Solution</strong></td>
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<tr>
<td>Student completes FCOI and IRB training and forwards training certificates and copy of CV to their adviser.</td>
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<tr>
<td>Student sends advisers a copy of the ARP Proposal and IRB Application.</td>
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<tr>
<td>Adviser returns ARP Proposal and IRB Application to ARP facilitator with feedback/comments.</td>
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<tr>
<td>Student sends ARP adviser final version of ARP Proposal and IRB Application.</td>
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<tr>
<td>Student submits IRB Application to ATSU IRB, and outside IRB if applicable, copying all committee members on this submission.</td>
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<tr>
<td>Student completes all requirements according to the ATRN 9002 syllabus.</td>
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<tr>
<td><strong>Student begins ATRN 9003: Implementing and Evaluating the Solution</strong></td>
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<td>Student completes all requirements according to the ATRN 9003 syllabus.</td>
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<tr>
<td><strong>Student begins ATRN 9004: Completing and Disseminating the Project</strong></td>
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<tr>
<td>Student sends adviser a copy of ARP Manuscript formatted according to chosen peer-reviewed journal publication requirements.</td>
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<tr>
<td>Student finalizes the manuscript and submits the final version to the peer-reviewed journal of choice and forwards receipt of submission to ARP facilitator.</td>
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<tr>
<td>Student finalizes the manuscript and submits the final version to the adviser.</td>
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<tr>
<td>Student completes all requirements according to the ATRN 9004 syllabus.</td>
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