



UNIVERSITY OF CALGARY
FACULTY OF ARTS
SCHOOL OF CREATIVE AND PERFORMING ARTS
DNCE 363 Dance Science
Winter 2023

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| Instructor Office Email Office Hours | Sarah J. Kenny PhD KNB 246; CHD 529 kennys@ucalgary.ca By appointment |
| Days Time Location of class | Wednesdays and Fridays 8:00 – 9:50am CHE 011 and CHE 012 |
| Learning Resources | <p>Required Text (available for purchase at UCalgary Bookstore)</p> <ol style="list-style-type: none"> 1. Simmel, L. (2014). Dance medicine in practice. London: Routledge. 2. Clippinger, K. (2015). Dance anatomy and kinesiology (2nd ed.). Champaign: Human Kinetics. <p>Recommended Texts</p> <ol style="list-style-type: none"> 1. Bean, A. (2014). Food for fitness: How to eat for maximum performance (4th ed). London: Bloomsbury Sport. 2. Calais-Germain, B. (1993). Anatomy of movement. Seattle: Eastland Press. 3. Farhi, D. (1996). The breathing book. New York: Henry Holt. 4. Grossman, G. (2015). Dance science: Anatomy, movement analysis, conditioning. Hightstown: Princeton Book Company. 5. Haas, J. (2010). Dance anatomy. Champaign: Human Kinetics. 6. Howse, J., & McCormack, M. (2009). Anatomy, dance technique and injury prevention (4th ed.). London: Bloomsbury Publishing PLC. 7. Koutedakis, Y., & Sharp, N. C. C. (1999). The fit and healthy dancer. Chichester: Wiley. 8. Krasnow, D., & Wilmerding, M. V. (2015). Motor learning and control for dancers. Champaign: Human Kinetics. 9. Laws, K., & Sugano, A. (2008). Physics and the art of dance: Understanding movement (2nd ed.). New York: Oxford University Press, Inc. 10. Mastin, Z. (2009). Nutrition for the dancer. Alton: Dance Books. 11. Nordin-Bates, S. (2022). Essentials of Dance Psychology. Champaign: Human Kinetics. 12. Olsen, A. (1998). Body stories: A guide to experiential anatomy. New York: Station Hill Openings. 13. Quin, E., Rafferty, S., & Tomlinson, C. (2015). Safe dance practice. Champaign: Human Kinetics. 14. Solomon, R., Solomon, J., & Micheli, L. J. (Eds.) (2017). Prevention of injuries in the young dancer. Cham: Springer. 15. Taylor, J., & Estanol, E. (2015). Dance psychology for artistic and performance excellence (2nd ed). Champaign: Human Kinetics. |

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| | <p>16. Thomas, J., Nelson, J., Silverman, S. (2015). Research methods in physical activity (7th ed). Champaign: Human Kinetics.</p> <p>17. Wilmerding, M. V., & Krasnow, D. (2017). Dancer wellness. Champaign: Human Kinetics.</p> <p>Dance Science Journals Journal of Dance Medicine and Science Medical Problems of Performing Artists</p> <p>Dancer Health Resource Papers (open access) Healthy Dance Canada Resource Papers International Association for Dance Medicine & Science Resource Papers International Association for Dance Medicine & Science Bulletins for Teachers</p> <p>Dancer Health Blogs International Association for Dance Medicine & Science Blog 4Dancers.org Dance Wellness Blog</p> <p>Dancer Health Podcasts Jasmine Cook hosts SciDance podcast Ellie Kusner and Marissa Schaeffer host DanceWell podcast</p> |
| Learning Technologies and Requirements | There is a D2L site for this course which contains required readings and other relevant class resources and materials (see d2L.ucalgary.ca). |
| Prerequisites | Kinesiology 259 or Dance 359. |
| Course Description | <p>The scientific study of dance and the practical application of scientific principles to dance practice.</p> <p>This course will develop knowledge, comprehension, application and evaluation of:</p> <ul style="list-style-type: none"> • dance movement analysis (i.e., structure, function, role of gravity) • biomechanics (i.e., terminology, musculoskeletal system, postural assessment) • physiology (i.e., neuromuscular system, respiratory system, energy system) • nutrition (i.e., energy sources, hydration, somatotypes, relative energy deficiency in sport [RED-S]) • psychology (i.e., motivation, confidence, psychological skills) • somatics (i.e., kinaesthetic awareness, movement efficiency, breath patterns) • safe dance practice (i.e., risk identification, injury prevention, injury management) • scientific research (i.e., design, quantitative and qualitative methodology) <p>Classes will be designed to address the specific needs of dancers and the demands of the dance profession. Classes will involve both lectures and studio-based activities. In each class, we will be moving, talking, and/or taking notes. Observation and hands on work will facilitate the exploration of ideas. Please take care of your own comfort and dress appropriately.</p> |
| Course Learning Outcomes | <p>By the completion of this course, successful students will be able to:</p> <ol style="list-style-type: none"> 1. explain the principles of kinesiology (i.e., anatomical, and biomechanical organization) that underline the performance of human movement |

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| | <ol style="list-style-type: none"> 2. conduct a comprehensive movement analysis of a dance phrase 3. reflect on the application of kinesiology to their own dance practice 4. integrate issues of health and safety into their own dance practice 5. describe biomechanical, physiological, nutritional, somatic, and psychological concepts relevant to dance 6. compare different research designs and scientific methodologies 7. present a dance science research proposal (literature review, objective, research plan, significance) 8. defend the importance of scientific research and its application to a dancer's training, performance enhancement, health and wellness, and injury prevention |
| Course Schedule | See below. Note that our weekly course schedule may be subject to change. |
| Assessment components | <p><u>Assignment 1: Participation</u> Description: Owing to the discursive and experiential nature of this course, classes are equivalent to assignments. Specifically, 10% of the participation grade will be attributed to responsible professional behaviour (e.g., arriving to each class on time, notifying the instructor when absent), being prepared to work (e.g., readings completed), and fully engaged for the duration of the class (e.g., consistent involvement in practical experiences, note taking, actively participating in discussions during lectures). An additional 5% will be given for providing honest input and self-evaluation of your own participation grade toward the end of term. Marks will be deducted if you miss more than one week of class (i.e., 2 classes) – see Assessment Expectations below. Weight: 15% of final grade</p> <p><u>Assignment 2: Movement Analysis Exam</u> Assessment Method: Written exam Description: Short-answer questions will assess your knowledge, comprehension, and application of anatomy and biomechanics from material covered in class and weekly readings. You will also conduct a series of kinesiological analyses (e.g., movement planes, major joints, primary muscles) of simple dance movements. Weight: 15% of final grade Date: Wed Feb 1 2023 at 8:00am</p> <p><u>Assignment 3: Self Profile Essays</u> Assessment Method: Written essay Length: Two pages each Description: The Self Profile Essays will address personal observations made throughout the semester that are specific to the following topics: somatics, nutrition, psychology. Rather than try to change anything, you will simply observe and reflect upon the impact that your observations have on your current dance training.</p> <p>Content will include:</p> <ol style="list-style-type: none"> 1. an introduction to the topic as it relates to dance practice, 2. a description of what you have observed in yourself, 3. discussion of how this observation translates or applies to your dancing, and |

4. specific recommendations for continued personal improvement in your dance practice, specific to your observation.

A minimum of 4 references (including 2 primary sources) will be cited within your report and a reference list following APA formatting will be included.

Weight: 40% of final grade; three essays worth 13.3% each (3 x 13.3% = 40%)

Due Dates: By end of day (11:59pm) on specified dates below

1. Somatics – Wed Mar 1 2023
2. Nutrition – Wed Mar 8 2023
3. Psychology – Wed Mar 24 2023

Assessment Criteria

By the completion of this assessment, successful students will be able to:

- describe specific topics within dance science (e.g., somatics, nutrition, psychology)
- analyze a personal observation(s) using appropriate scientific terminology
- discuss the impact of this personal observation(s) on current/previous dance practice (e.g., training, performing, teaching)
- formulate detailed and relevant recommendations for improved healthy dance practice in relation to personal observation(s)
- support all discussion points with relevant, current dance science literature (i.e., minimum 4 references inclusive of 2 primary sources)
- write a clear and coherent two-page essay with an introduction, body, and conclusion that is free from grammatical and spelling errors

Assignment 4: Research Proposal

Assessment Method: Individual Structured Abstract (350 words; 10%); Group Oral Presentation (10min; 20%)

Description: You will be required to work together in partners to propose a specific dance science research project. The proposal will be referred to in future tense (i.e., will, will be). With reference to material covered in class, current dance science literature and an understanding of scientific methodology, you will discuss:

1. why you think this particular research project is necessary (background, objective),
2. how it could be implemented (research plan – participants, procedures, analysis)
3. the proposed impact that your project will have on future dance practice and dance science research as a whole (conclusion, significance).

Weight: 30% of final grade

Due Date: By 8:00am on Wed April 5 2023

Assessment Criteria

By the completion of this assessment, successful students will be able to:

- provide a rationale for a proposed research project
- clearly state a research objective(s)
- design a feasible and appropriate research plan to execute the proposed project
- explain the overall significance of the proposed research

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| | <ul style="list-style-type: none"> • follow standard scientific framework <p>Specific to individual structured abstract:</p> <ul style="list-style-type: none"> • write a clear, well-formatted 350-word structured abstract (i.e., objective, research design, setting, participants, exposure/outcome variables, significance) that is free from grammatical and spelling errors <p>Specific to group oral presentation:</p> <ul style="list-style-type: none"> • present effectively (i.e., coherent PowerPoint slides (or equivalent), clear speaking, eye contact, easeful transitions between group members) • answer questions and expand ideas as required |
| Assessment Expectations | <p><u>Guidelines for Submitting Assignments</u> All required assignments (i.e., self profile essays, research proposal) will be due on D2L by the specified dates and times.</p> <p><u>Guidelines for Formatting Assignments</u> Self Profile Essays: You will put a title, your name and UCID on a cover sheet. The body of the essay will be at maximum two pages, single sided, 1.5 spaced, 12-point font, with default margins. A separate reference page will complete the essay with a minimum of 4 references will follow APA formatting structure. These references will include at least 2 primary resources (i.e., original research studies).</p> <p>Research Proposal: Individual Structured Abstract – You will put a title, your name and UCID on a cover sheet. The structured abstract will follow standard scientific framework (i.e., objective, research design, setting, participants, exposure/outcome variables, significance). It will be at maximum 350 words, 1.5 spacing, 12-point font, with default margins. Group Oral Presentation – Your 10-minute oral presentation of a potential dance science research project will follow standard scientific framework (i.e., background, objective, research plan – participants, procedures, analysis – and significance). You will be prepared to answer questions from your peers.</p> <p><u>Missed or Late Assignments</u> Late assignments will not be accepted beyond the day that they are due. Pending extenuating circumstances, which have been communicated to Dr. Kenny ahead of time, late submissions will be accepted via email with the understanding that up to 2% will be deducted each day beyond the due date. Late submissions beyond 5 days will not be accepted.</p> <p><u>Expectations for Writing:</u> Writing skills are important to academic study across all disciplines. Consequently, instructors may use their assessment of writing quality as a factor in the evaluation of student work. Please refer to the Undergraduate Calendar E.2 Writing Across the Curriculum policy for details.</p> |
| Grading Scale | <p>Undergraduate: https://www.ucalgary.ca/pubs/calendar/current/f-1-1.html</p> <ul style="list-style-type: none"> • A grade of "C-" or below may not be sufficient for promotion or graduation, see specific faculty regulations. • The number of "D" and "D+" grades acceptable for credit is subject to specific undergraduate faculty promotional policy. |

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| | <p>For DNCE 363, the following numerical rubric will be applied:</p> <p>A+ 96-100 A 91-95 A- 86-90 B+ 81-85 B 76-80 B- 71-75 C+ 66-70 C 61-65 C- 56-60 D+ 51-55 D 46-50 F 0-45</p> |
| Academic Accommodation | <p>It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The Student Accommodations policy is available at https://ucalgary.ca/student-services/access/prospective-students/academic-accommodations.</p> <p>Students needing an accommodation based on disability or medical concerns should contact Student Accessibility Services (SAS) in accordance with the Procedure for Accommodations for Students with Disabilities (https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf).</p> <p>Students who require an accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a Protected Ground other than Disability should communicate this need in writing to their Instructor.</p> <p>SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities, visit www.ucalgary.ca/access/.</p> |
| Academic integrity, plagiarism | <p>Academic Misconduct refers to student behavior which compromises proper assessment of a student's academic activities and includes: cheating; fabrication; falsification; plagiarism; unauthorized assistance; failure to comply with an instructor's expectations regarding conduct required of students completing academic assessments in their courses; and failure to comply with exam regulations applied by the Registrar.</p> <p>For information on the Student Academic Misconduct Policy and Procedure please visit: https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Academic-Misconduct-Policy.pdf and https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Academic-Misconduct-Procedure.pdf. Additional information is available on the Academic Integrity Website at https://ucalgary.ca/student-services/student-success/learning/academic-integrity.</p> |
| Internet and electronic communication device | <p>The use of laptop and mobile devices is acceptable when used in a manner appropriate to the course and classroom activities. Please refrain from accessing websites and resources that may be distracting to you or for other learners during class time. Students are responsible for being aware of the University's Internet and email use policy, which can be found at https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Acceptable-Use-of-Electronic-Resources-and-Information-Policy.pdf.</p> |
| Intellectual Property | <p>Course materials created by instructors (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the instructor. These materials may NOT be reproduced, redistributed or copied without the explicit consent of the instructor. The posting of course materials to third party websites such as note-sharing sites without permission is prohibited. Sharing of extracts of these course materials with other students enrolled in the course at the same time may be allowed under fair dealing.</p> |
| Copyright | <p>All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright (https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Acceptable-Use-of-Material-Protected-by-Copyright-Policy.pdf) and requirements of the copyright act (https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html) to ensure they are aware of the consequences of unauthorised sharing of course materials (including instructor notes, electronic versions of textbooks etc.). Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy https://www.ucalgary.ca/pubs/calendar/current/k.html.</p> |

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| Freedom of Information and Protection of Privacy | Student information will be collected in accordance with typical (or usual) classroom practice. Students' assignments will be accessible only by the authorized course faculty. Private information related to the individual student is treated with the utmost regard by the faculty at the University of Calgary. |
| Student Support | Please visit this link for important information on UCalgary's student wellness and safety resources: https://www.ucalgary.ca/registrar/registration/course-outlines |
| Arts Students' Centre Program Advising: | Have a question but not sure where to start? The Arts Students' Centre is your information resource for everything in the Faculty of Arts. Call us at 403-220-3580 or email us at ascarts@ucalgary.ca . You can also visit the Faculty of Arts website at http://arts.ucalgary.ca/undergraduate which has detailed information on common academic concerns. |
| Faculty of Graduate Studies: | For graduate studies email: graduate@ucalgary.ca or call 403 220 4938. Visit the Faculty of Graduate Studies for more details: https://grad.ucalgary.ca/ |

DNCE 363: Dance Science
Course Schedule Winter 2023

| Week | Dates | Wednesday. 8:00 – 9:50am | Friday. 8:00 – 9:50am |
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| 1 | Jan 11 + 13 | Course Introduction Why is science important for dance? | Movement Analysis Muscular function, role of gravity, postural assessment Reading Clippinger Ch 8, Wilson 2008 |
| 2 | Jan 18 + 20 | Lower Limbs Foot, ankle, knee Reading Simmel Ch 5-6, Clippinger Ch 5-6 | Body Center Hip, spine Reading Simmel Ch 2-4, Clippinger Ch 3-4 |
| 3 | Jan 25 + 27 | Upper Limbs Shoulder, elbow Reading Simmel Ch 7, Clippinger Ch 7 | Exam Review |
| 4 | Feb 1 + 3 | Due Movement Analysis Exam | Research Methods Qualitative and quantitative, study design, abstracts |
| 5 | Feb 8 + 10 | Somatic Practice Breath awareness Reading Batson 2009 | Somatic Practice Kinaesthetic awareness, mental imagery Reading Pavlik 2016 |
| 6 | Feb 15 + 17 | Nutrition: Energy sources, somatotypes Reading Simmel Ch 9, Challis 2019 | Nutrition Specific needs of the dancer Guest Kim Wagner Jones, RD |
| 7 | Feb 22 + 24 | TERM BREAK | |
| 8 | Mar 1 + 3 | Psychology Performance effectiveness, motivation, self-confidence Reading Simmel Ch 8, Kaufmann 2021 Due Somatics Self Profile Essay 1 | Psychology Body image, burnout, self-care Guest Dr. Angela Grace |
| 9 | Mar 8 + 10 | Field trip to Human Performance Lab (KNES) Demonstration of equipment Due Nutrition Self Profile Essay 2 | No class: Mainstage opens |
| 10 | Mar 15 + 17 | Field trip to Library (TFDL 440A) Research Methods Literature search and retrieval strategies Guest Marc Stoeckle | Research Methods Principles of critical appraisal Reading van Seters 2020 |
| 11 | Mar 22 + 24 | Research Methods Graduate students to present proposals Due Psychology Self Profile Essay 3 | Research Methods Structure of a scientific study, oral presentation skills |
| 12 | Mar 29 + 31 | Student tutorials; Guided study time | Student tutorials; Guided study time |
| 13 | Apr 5 + 7 | Due Research Proposal Presentations Due Structured Abstracts | Good Friday |
| 14 | Apr 12 | No class: Bermuda Shorts Day | |