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| **Anthro 748: – Human Osteology** |
| Semester 1, 2019 |
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| Advanced method and theory in human osteology. Coursework is a combination of seminars and practical workshops covering the areas of biocultural frameworks, ethics, taphonomy, human identification, dental anthropology, palaeopathology and biomolecular approaches. Work is focused upon method and theory as applied in the southern Hemisphere. |
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Anthro 748: – Human Osteology

Semester 1, 2019

# Course times:

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Seminar: Monday 10-11 (Rm 706);

Lab: Monday 11-1(Rm 706).

# Course staff:

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Judith Littleton
Room 721,
HSB
email: j.littleton@auckland.ac.nz

Phone: x88574

*Come and see me during office hours. If the posted times don’t work then make an appointment or drop in if the door is open. Don’t try and communicate only by email – if at home pick up the phone and ring. It saves so much time!*

**ANTHRO 748**

The emphasis in this course is on the development of practical skills in the analysis of skeletonised human remains as well as an underlying understanding of the principles involved and the ability to evaluate work in this area whether bioarchaeology, forensic anthropology or evolutionary anthropology.

The aim is to introduce you to the principles of osteological analysis and to give you sufficient knowledge and experience to recognise when it is possible to identify remains, when it is not possible, and when further work needs to be done.

There is a focus upon working in the southern hemisphere (dealing with high degrees of biological variability, the appropriate use of standards and consideration of ethics). Assessment is designed so that you learn how to prepare the sorts of writing and presentation needed within a professional sphere. Classes include a weekly one to one-and-a-half hour seminar, where we explore research in the field and develop an understanding of best practice, and a weekly one-  to two-hour practical.

**Course aims:**

* To have students understand the fundamental nature of bone as a living tissue
* To introduce students to the identification of human bone and its recording particularly considering the different circumstances (archaeological and forensic) in which it may be found.
* To introduce students to the skills involved in identification of human remains including ageing, sexing, population affinity, trauma etc.
* To have students understand the assumptions and principles that underlie the processes of human identification
* To gain an appreciation of the particular nature of human identification and its ethical considerations within the context of the southern hemisphere
* To have students develop a further understanding of the theoretical applications of osteological analysis to archaeological and forensic issues

**Learning outcomes:**

* To understand the nature of bone, cartilage, enamel and joints
* To be able to identify skeletal elements to side
* To be able to distinguish human from relatively complete animal bones
* To be able to apply the standard methods of ageing, sexing and identification to relatively complete remains
* To be able to hypothesise and distinguish indicators of taphonomic processes and some basic pathological processes
* To be able to describe human remains accurately and precisely for archaeological or forensic applications
* To be able to present that work in a professional manner in oral and written form
* To be able to evaluate methods of analysis in a thorough and systematic manner
* To be able to evaluate published work in the field with a particular focus upon theory, underlying assumptions and interpretation

Employability skills:

Analysis: through research with quick identification of relevant information and sources, focussing on evaluation of established techniques, identification of assumptions and providing recommendations for current and future work. Ability to provide thoughtful professional advice on methods and techniques.
Workplace writing skills: writing of a technical report, writing of a systematic review, oral presentation of results.
Cultural skills: understanding of ethical issues involved in working with human remains with people from diverse cultures, understanding of professional ethical standards, can identify best practice standards, understands the relevant legislation.
Professional skills: be able to organise work, observe fully and accurately, record systematically and understand and identify the limits of interpretation. Approach work with a critical and enquiring mind.

# *Course description*

The emphasis in this paper is on the development of practical skills in the analysis of human remains as well as an underlying understanding of the principles involved. The aim is to introduce you to the preliminaries of human osteology and to give you sufficient knowledge and experience to recognize when it is possible to identify remains, when it is not possible and when further work needs to be done. Classes include a weekly one hour seminar and a weekly two hour practical. These are really busy times so it is recommended that you continue on in the lab after the formal teaching session solidifying your observations and learning.

# Course Aims:

1. To introduce students to the basics of human osteology so that they can identify elements and partial elements to side;

2. To introduce students to the differentiation of human and animal bone in archaeological and forensic contexts;

3. To have students understand the fundamental nature of bone as a living tissue;

4. To have students understand the assumptions and principles that underlie the processes of human identification;

5. To gain an appreciation of the particular nature of human identification and its ethical consideration s within the context of the southern hemisphere;

6. To have students develop a further understanding of the theoretical applications of osteological analysis to archaeological and forensic issues.

## In practical terms that means:

# COURSE BOOKS

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## Seminars:

Martin, D et al. 2013 Bioarchaeology: An integrated approach to working with human remains. New York: Springer ISBN 978-1-4614-6377-1 (Available as an ebook) [BIO]

## Lab Work:

Brickley, M and McKinley, J 2004 Guidelines to the Standards and Recording of Human Remains. Institute of Field Archaeologists Paper No. 7 <http://www.babao.org.uk/HumanremainsFINAL.pdf>
Mashies, E 2005 Human Osteology and Skeletal Radioology. Roca Baton: CRC Press (ebook)
White, T 2005 The Human Bone Manual. Boston: Elsevier and Academic Press

1. understand the nature of bone, cartilage, enamel and joints

2. be able to identify skeletal elements to side

3. be able to distinguish human from relatively complete animal bones

4. be able to apply the standard methods of ageing, sexing and identification to relatively complete remains

5. to be able to hypothesise and distinguish indicators of taphonomic processes and some basic pathological processes;

6. to be able to describe human remains accurately and precisely for archaeological or forensic applications;

## Course assessment: (Using a 14 week semester)

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| Weekly seminar participation (see below)  | 10% (500-1000 words)(DUE BY END OF SEMESTER) 5 June, 2019 |
| One lab tests (Week 6 ) | 10% (This will be in the form of a practical test) 8 April, 2019 |
| Essay  | 40% (3000 words) (6 May, 2019) |
| Take home lab test (involving recording of an unknown individual and presentation of report) | 30% (c2000 words (10 June)10% 5 minute presentation (Week of 5 June) |

## Essay topics:

Your essay topic is to take one method of osteological analysis to do with human identification (e.g.a method of ageing, population affinity, sexing, mobility, etc etc) and explain in plain English the assumptions, the core principles, the limitations of the method and produce on the basis of that a set of guidelines for it use. This isn’t just a summary of a method but it is a careful exploration of a method (e.g. stature estimation using regression analysis or strontium analysis of mobility) and an evaluation of its limits. The aim is to ensure that you can evaluate and explain methods, weigh them up and assess their usefulness. This is the sort of thing you need to be able to do both for your further research in any field but also if you have to justify your work in the field for ethics committees, courts, permit granting agencies etc. In undertaking this I suggest that you use a standard form of meta-analysis and we will discuss how to do this and workshop techniques in class.

## Take home lab test:

In **27 May** you will be given a maximum of three hours in the lab to record a previously unmet skeleton. Your task will be to record its characteristics (you can take photographs, measurements etc) and then prepare a report of the remains as if you are undertaking a contract job. Remember in all such pieces of work it needs to be transparent what you have done and why. The report must also include a plain English summary (up to one page. You will present these results in the last session of the semester.

## Seminars and Seminar Topics:

Seminars will run as a round table discussion led by one member of the class. The aim of each discussion is to explore the topic fully, identify the premises, promises and pitfalls surrounding that particular issue. There is an assigned reading for all class members each week from the text (BIO) and the class leader for that week will introduce us to two relevant case studies which they will circulate on the Thursday before their class. They will produce after the class a completed commentary (templates will be provided) – the goal of which is to identify the fundamentals of best practice. These documents will form 10% of the class mark and will be circulated to the entire class.

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| Week | Topic | Reading |
|  | Intro to class etc. and Ethics and best practice | Bio chap 1, BIO Chap 2 |
|  | Bioarch and forensic anthropology – principles | BIO chap 3 |
|  | Understanding taphonomy and its importance | BIO Chap 4 |
|  | Linking Mortuary Context with Human Remains – principles | BIO Chap 5 |
|  | Identification of an individual - principles | Franklin, D., 2010. Forensic age estimation in human skeletal remains: current concepts and future directions. *Legal Medicine*, *12*(1), pp.1-7. |
|  | Disease and trauma – principles of recording and diagnosis | Ortner, D.J., 2012. Differential diagnosis and issues in disease classification. *A companion to Paleopathology*, pp.250-267. |
|  | MIDSEMESTER BREAK |  |
|  | MIDSEMESTER BREAK |  |
|  | Inequality and Poor Health: Infection, Morbidity, and Early Death – thinking about research design  | BIO Chap 6 |
|  | Modelling the Effects of Stress and Change at the Population Level Using Skeletal Remains – examples | BIO Chap 7 |
|  | Bioarch and the environment – what use is bioarch now? | BIO Chap 10 |
|  | Molecules and bioarch – isotopic analysis/ancient DNA | BIO Chap 8 |
|  | Lab Test | BIO Chap 8 |
|  | Student Presentations (to be scheduled at a different time) |  |

## LABS (748)

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| Week |  |
| *1* | *Bone, bone growth and biologyTask: Anatomic terms, directions etc. Identify elements and directions. : Draw a bone element identifying the microstructures, the different types of bone, the attachments of soft tissue, and label it thoroughly.*  |
| 2 | *Human versus animal**Task: Using complete elements you will be asked to identify if a bone is human or animal and explain why. From this you should be able to think of a sequence of questions to aid identification.*  |
| 3 | *Fragment identificationTask: identification of bones, joints, teeth. Identify which element and what range of motion it might be involved in. [week 3 lab test]* |
| 4 | *Taphonomy and context:Task: consider and describe these taphonomic indicators plus the role of context in identification of burial practice.* |
| 5 | *Methods of ageing and sexing 1: Sexing adults and ageing juvenilesTask: using morphological and quantitative measures sex the elements laid out in front of you, Identify adult versus juvenile teeth and bones. List key of identifiers that you can use in the future.* |
| 6 | *Adult ageingTask: Familiarise yourself with standard methods of ageing in this series of tasks. Record your observations. What age would you assign to this person and why? (Lab test)* |
| 9 | *Dental pathology Task: use a routine categorical method to both identify and record dental pathology and wear.* |
| 10. | *Pathology and traumaTask: Describe and attempt a differential diagnosis of these cases thinking in relation to bone biology (remodeling, resorption, mineralization etc).* |
| 11 | *Population Affinity*Task: Record your observations relevant to population affinity and write a short description of population affinity in the wording appropriate for a forensic case. |
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| 12 | *Catch- up – time to revise and improve. Photography* |
| 13 | Take Home test (3 hrs with an unknown skeleton) |
| 14 | Presentation of your results. 5 minute presentation, 3 minute questions. |