Psychology of Appetite
Final Year Option
C8839
15 Credits
Term 2 2015

Module Convenor: Martin Yeomans

NOTE: Most of the questions you need answers to about this Module are in this document. Please read it fully and carefully before your first seminar.

NOTE: This document concerns the structure and content of the Module. If you have questions about procedures, please consult the School of Psychology Administration Office in Pev1 2A13 or via psychology@sussex.ac.uk.
PSYCHOLOGY OF APPETITE

Module Overview

Official Module Title: Psychology of Appetite

Official Module Code: C8839

Module Organiser:
The Psychology of Appetite Module is organised by Prof Martin Yeomans, a member of the School of Psychology. The remainder of this document was prepared by Prof Yeomans.

You are welcome to direct queries concerning the Module to him during his office hours (Term 2 2015: Monday 1400-1500 and Thursday 15:00-16:00) in Pevensey 1 room 1C4, or by email (martin@sussex.ac.uk).

Type of Module:
Psychology of Appetite is a final year optional Module which is available to all Psychology undergraduate students, and to students studying Biology or Neuroscience degrees. It is available to Visiting and Exchange students from any School providing that they have an appropriate academic background.

Module description: The Module content list entry for Psychology of Appetite reads:
Taking a psychobiological perspective, the Module explores issues in our relationship with food. The initial focus will be on appetite control, and constructs of hunger and satiety. Discussion of flavour perception and hedonics then allows evaluation of concepts of food craving and addiction, and food choice and preference. Examination of non-nutritive effects of foods (including nutraceuticals) links food to mood and cognition. Finally, we explore the basis of the rise of obesity and disordered eating from a psychobiological perspective.

Module Aims and Objectives:
The recent rise in incidence of both obesity and disordered eating has meant that the traditional view of eating as a closely regulated behaviour to be revised. This Module examines current issues in our relationship with food, with the overall aim of giving students detailed knowledge of our current understanding of the control of normal and abnormal food intake and preferences. More specifically, the Module objectives are that by the end of the Module, if you attend lectures and cover the seminar material, you should:

- have knowledge of major theories of appetite control, and their relative strengths and weaknesses
- understand recent developments in biological controls of appetite and their relevance to obesity and disordered eating
- be able to apply concepts from drug addiction to understanding our relationship with food
- understand the nature of eating disorders, and how these may be explained at biological, cognitive and social levels
have developed further skills in analysing, summa using and commenting on appropriate technical material through essay writing both as coursework and in the unseen examination

have developed further your skills in presenting work to an audience clearly and pertinently, and in making appropriate contributions to group discussion, during the seminars

Summary of Module Content and Structure:

The Module is presented through a combination of lecture-based material and student-lead seminar discussions, each accompanied by reading lists drawing heavily on recent primary reference sources. After a Module overview, the first two lectures describe current models of hunger and satiety in order to ensure all students have a broad understanding of general models and theories of homeostatic eating. The emphasis here is on behavioural and general physiological controls, and only touches on current neural models. The emphasis then moves to discuss the nature of foods, and how sensory signals from foods may themselves modulate appetite control, before a discussion of the current obesity crisis in light of our understanding of these basic appetite controls. Attention then turns to understanding of food choice and preferences, exploring innate and acquired food preferences and their relation to food choice. The first seminar extends these ideas, focusing on important recent developments. The second section of the Module is directed to non-nutritive aspects of eating, and specifically exploring how different components of our diets may influence our mood and cognitive performance. The idea that foods may act in similar ways to addictive drugs leads to discussion of the concept of food addiction, an idea that is the focus of the second seminar. To date the Module has concentrated on normal controls of eating and food preferences, but the increase in incidence of an ever-widening range of eating disorders is the basis for the final four lectures, stating with detailed evaluations of the diagnosis and psychopathological features of these disorders, and then exploring psychobiological models of anorexia and bulimia. The lecture Module ends by consideration of the role of dieting in development of eating disorders, and these issues are then discussed at length in the final seminar.

CORE READING MATERIAL AND TEXTBOOK RECOMMENDATIONS

At present there is no one textbook which covers all the material on this Module, and the Module will draw primarily on primary source material, and recent journal reviews. However, the introductory material in the first few lectures is covered at a basic level in most major Psychobiology textbooks, and the following general textbooks all contain useful, general background summaries of key material.


Specialised Books on Eating

Two textbooks cover a great deal of the Module content, although from rather different perspectives, with different emphases. Although dated now, Logue is still useful.

The following reference books are also relevant to specific sections of the Module:


Core articles

Most of the reading for this Module is taken from recent reviews and original papers. Lists of references will be provided with each lecture handout and core articles are listed for each lecture at the end of the handbook. Core articles can be downloaded from the Study Direct site for this Module in .pdf format

Organisation of Teaching

As with all Psychology 3rd year options, the Module has 2h contact a week and extensive background reading lists. Weekly meetings will either be through two one-hour lectures or a single 2-hour seminar.

The Table overleaf summaries the overall organisation of teaching. Details of days, rooms and times will appear on your timetables through Sussex Direct. Notification of any changes in organisation of teaching will appear on Sussex Direct.
### TEACHING TIMETABLE

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture</th>
<th>Seminar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 Introduction/overview</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 Basic concepts 1: Hunger</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>3 Basic concepts 2: Satiety</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 Understanding food flavour</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>5 Development food preferences</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>6 Integrating Flavour and Appetite</td>
<td>Appetite and food preference development</td>
</tr>
<tr>
<td></td>
<td>7 Appetite and the Brain</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>8 The obesity crisis 1: epidemiology and treatment</td>
<td>Obesity, food, mood and addiction</td>
</tr>
<tr>
<td></td>
<td>9 The obesity crisis 2: causes</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>10 Nutrients, mood and memory</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11 Food addiction</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>12 Defining disordered eating</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13 Psychobiology of anorexia and bulimia</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>14 Socio-cognitive components of anorexia and bulimia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 Dieting and disordered eating</td>
<td>Disordered eating</td>
</tr>
<tr>
<td>9</td>
<td>16. Revision and course feedback</td>
<td></td>
</tr>
</tbody>
</table>

### Module Requirements and Assessment.

As with other Sussex Modules, lectures and seminars are compulsory. The formal assessment of this Module is a combination of a 2-hour unseen examination in Summer Term (60%) and coursework (40%) comprising of two elements: an assessed seminar presentation in one of the three Module seminars (50% of coursework) and a 1000 word report (50% of coursework). **Note that because the seminar presentations are formally assessed, failure to attend and present at these seminars will count as non-submission of assessment.**

There is no formal requirement for students to write an essay during this Module, but since the unseen examination is primarily based on essay questions, I am happy to informally comment on one essay or essay plan if students wish to write an essay as part of their examination preparation during term time.
Coursework report

For the coursework report, you can choose ONE of TWO options. For both report Options the final report has a word limit of 1000 words: this is intended to be a focussed and concise piece of work.

Option 1 coursework report is in the style of a peer commentary on a recent influential paper relating to the Module. Choose one of the articles below, read it thoroughly and then write a report which should include two sections:

1. A succinct summary of the major points made in this article (no more than 500 words)
2. A discussion of what the article has added to our understanding of the area of appetite it relates to. This might be a critical evaluation of whether the principle claims of the article are a fair evaluation of our current understanding, whether the article takes the field in a new direction. It should include some evaluation of the impact of the article (examples of impact might be how it has stimulated further research, altered a theoretical emphasis, questioned past assumptions about an area, altered practice for treatment etc.)

The target articles that you can choose from are:


**Option 2** coursework report is in the style of a research proposal. The aim of this piece of work is to get you to think about what we do and don’t know in some of the key areas of the module, and write a research proposal for 3-years work that could advance our knowledge.

For each research area, I would expect the report to have three sections:

a) A succinct summary of the state of knowledge in that area
b) A summary of what in your estimation of the literature we do NOT know yet
c) An outline plan for a series of experiments or other forms of data collection that could redress our shortfall in knowledge.

The key research questions you can choose from are:

1. Is flavour nutrient learning a unique form of learning?
2. How do different senses integrate to generate flavour?
3. How do we make foods more satiating?
4. Do the ingredients in typical energy drinks really “give you energy”?
5. Is sugar addiction real?
6. Does dieting make you insensitive to satiety?

**Seminar Presentations**

There will be three seminar sessions each lasting 2 hours. These will run in Weeks 5, 8 and 11. Seminars will be primarily student-lead, with the majority of seminar time comprising roughly 4 10-minute presentations on topics relating to the Module, chosen from the list below. These presentations are worth 20% of overall Module assessment.

Seminar topics will be assigned by the end of the first week of the Module and have been chosen to build on the material presented in lectures in areas where there have been substantial recent developments, or which are particularly topical at present. The remaining seminar time will be spent on focussed discussions of key articles.

Presentations will be assessed using the formal criteria available on the Psychology web at [http://www.sussex.ac.uk/psychology/internal/schoolinformation/examinationsandassessment](http://www.sussex.ac.uk/psychology/internal/schoolinformation/examinationsandassessment)

You must prepare a **handout for your presentation** that is given to the Module Convener either by email (to martin@sussex.ac.uk) or by hand BEFORE your presentation. Evaluation of the content of this handout will comprise 50% of the assessment of the presentation, with the remaining 50% assessment coming from the actual 10-minute presentation to the seminar group. The handout can simply be a copy of the slides you will use (printed as 6
slides per page) or a short (no more than 2 page) summary of the key content. The handout MUST include a reference list of the sources you have used.

**On-line Support**
On-line support is primarily through the Study Direct Psychology of Appetite web-page, and is linked through the Psychology web-page and Sussex Direct. Here you will find all Module documents ready to download, information on seminars including, later in the term, copies of presentations by fellow students from the 3 seminars. You will also find links to most key articles cited in the handbook.

**Module Monitoring and Student Feedback**
At the end of the term formal Module feedback will be obtained by questionnaire and seminar discussion. This is the 6th year this option has run, and feedback in previous years was very positive, and performance in assessments above average for final year options. I’ll try and keep up the good work this year!

Martin Yeomans, November 2014
LECTURE CONTENT: KEY TOPICS

1. Introduction & Overview
   This lecture is largely administrative and illustrates content in a relaxed format.

2. Basic concepts 1: Hunger.
   - Defining hunger and the difference between subjective and physiological hunger
   - Basic homeostatic conception of hunger
   - Peripheral hunger signals
   - Hunger as anticipatory motivation

Background reading:

3. Basic concepts 2: Satiety.
   - Satiation and satiety
   - Oral factors in control of meal-size
   - Post-ingestive signals and satiety

Background reading:
Logue, chapter 2

4. Understanding food flavour 1: the perception of flavour
   - Multi-sensory science of flavour
   - Neural representation of flavour

Background reading:
Stevenson (2009) the Psychology of Flavour
5. Development of food preferences
   • Distinguishing hedonics, preferences and choices
   • Mere exposure: familiarity and monotony effects
   • Flavour-consequence learning
   • Flavour-flavour learning
   • Social facilitation and social conditioning
   • Key developmental influences on food preference development

Background reading

6. Flavour and the control of appetite: current perspectives
   • Palatability and the stimulation of appetite
   • Sensory satisfaction
   • Sensory expectation and the top-down control of satiety

Background reading:

7. Appetite and the Brain
   • The classic 2-centre theory and its shortcomings
   • The role of the lateral hypothalamus
   • Neural basis of flavour perception
   • Neural integration of flavour and appetite
**Background Reading**


8. The obesity crisis 1: epidemiology and treatment
   - Is their an obesity epidemic?
   - Current treatments in obesity

**Background reading**


9. The obesity crisis 2: causes
   - The genetics of body-size: predispositions and specific disorders
   - Overeating and obesity
   - Palatability and energy density

**Background reading**


10. Nutrients, mood and memory
   - The concept of nutraceuticals
   - Food as mood modulator
   - Blood glucose, mood and memory
   - Caffeine, mood and performance
   - Fats and mental health

**Background reading**


11. **Food addiction**
   - The McDonald’s court-case: food addiction and obesity
   - Food addiction: definitions and comparisons with drugs
   - Caffeine as a model of ingestive dependence
   - Wanting versus liking: addiction theory applied to food

*Background reading:*

*Behavior 66*: 3-14.

12. **Defining disordered eating**
   - Unusual eating disorders: pica, rumination and merycism
   - Defining anorexia nervosa: clinical syndrome or clinical convenience?
   - Bulimia and binge-eating disorder: pathological binge-eating
   - Historical perspectives on anorexia and bulimia

*Background reading:*

13. **The psychobiology of anorexia and bulimia**
   - The genetics of anorexia and binge-eating
   - Anorexia as an endocrine disorder
   - Stress and exercise: the role of learned aversions in anorexia
   - Depression and binge-eating: a serotonin link?
   - Anorexia and bulimia as addictions?

*Background reading:*

14. Socio-cognitive components of anorexia and bulimia
- Body-shape dissatisfaction and the onset of disordered eating
- Eating disorders as cultural diseases
- The role of the family

*Background reading:*

15. Dieting and disordered eating
- From externality to dietary restraint
- Disinhibition: does dieting lead to binge eating?

*Background reading:*
SEMINAR ORGANISATION AND CONTENT

Seminars have been designed with three aims in mind:

1. To help you understand better the core content presented in lectures
2. To go into specific topics in greater depth than lectures
3. To enhance your ability to précis and present key concepts in the psychology of appetite

To meet these aims, each seminar will have two sections. The main section (roughly 90 minutes) centres around four or five student presentations, each giving the presenter a chance to expand on ideas raised in lectures. **All students are required to present one topic, and this presentation will count for 15% of overall Module assessment (50% of your coursework component).** Topic assignments will be finalised soon after the first lecture by the Module organiser. Each topic has one or two readily available core readings which form the basic content of each presentation, but you are encouraged to augment this basic material with original material from recent publications which you should research yourselves. Topics are divided into themes, and each seminar description summarise the topics to be presented.

Seminar presentations should be no more than 10 minutes long (and this timing will be strict to allow parity of assessment), with an additional 5 minutes for questions after each talk. Non-presenters should be prepared to ask questions as this gives an opportunity for presenters to clarify and expand on material, and how presenters deal with questions will be part of the assessment.

**Part 2 (30 minutes)** is an open discussion of the Module content, with a chance to clarify issues which were unclear in lectures.

**References for seminar presentations**

Most topics have an associated (usually short) summary review paper which gives the key background. Most of these papers are available from Study Direct, and I recommend everyone reads all of these. Seminar topic also has a specific research paper which updates the review, and which will allow the presenter to follow-up the topic. These are either available on-line or from the main library.
SEMINAR 1: APPETITE CONTROL AND FOOD PREFERENCE DEVELOPMENT

1. Is pre-meal ghrelin increases a learned response?
Lecture 2 introduced the “hunger-hormone” ghrelin, and reported how ghrelin increases before meals. But why does it? Is this purely physiology or a learned response?

*Introductory review:*

*Key research articles:*

2. How much do we serve ourselves: understanding expected satiety
The first topic builds on the work we have covered on appetite control to think about a recent idea on how much we choose to eat and why.

*Introductory review:*

*Key research articles:*

3. PROP and food preferences
In lectures we talked about bitter taste. But we never considered how individuals differ. Today the idea of “super-tasters” is commonly discussed in the lay press. This presentation explores this idea.

*Introductory review:*

*Key research articles:*
4. Why do we like caffeinated drinks?
Most of us drink caffeinated drinks. But they taste bitter... so how do we get to like these products?

*Introductory review:*

*Key research article:*

5. Can we learn about food before we are born?
The senses of taste and smell are developed in utero. So can we learn about foods before we are even born?

*Introductory review:*

*Key research article:*
SEMINAR 2: FOOD, MOOD AND ADDICTION

The second seminar is in two parts. The first examines some of the most recent ideas relating appetite control to obesity, with 2 presentations, while the second moves away from ideas to do with appetite control to look in detail at more psychological aspects of our use of foods to ask: Can foods alter our mood and performance? Do they affect our mental health, and if so can we use foods to improve mental health?

1 FTO and the genetics of obesity
As discussed in lectures, despite the obesity epidemic our genetic make-up remains the best predictor of body-size. So what genes pre-dispose to obesity? FTO might be one.

Introductory review:

Key research articles:

2 The links between food reward and drug addiction.
Is food addictive? Results of studies of differences in reward pathways in the brain between obese and normal weight individuals suggest it might be… or does it?

Introductory review:

Key research articles:

3 Omega fatty acids, depression and schizophrenia
Can eating fish make you happy?

Introductory review:

Key research article:
4 Meals, mood and performance: contrasting effects of breakfast and lunch
How might taking specific meals (rather than nutrients per se) alter our mental functioning?

*Introductory review:*

*Key research article:*
SEMINAR 3: DISORDERED EATING

The final seminar looks at our understanding of obesity and eating disorders, building on the last 4 lectures and evaluating the relationship between theory and treatment.

1 Night-eating disorder.
We have learned about a variety of disorders on the course, but not yet night-eating...

Introductory review:

Key research article:

2 Binge eating as an escape
Do people binge to escape reality? This classic but complex cognitive theory argues the case for this idea.

Key review
Note this is a detailed review and the presentation here should be of key points and then an analysis of the impact of these ideas in the broader literature

3 Binge-eating and depression: a serotonin link.
Depression and eating are often linked: is there a biological basis?

Introductory review:

Key research article:

4 Appetite disturbance in anorexia: a need for re-learning?
Once ill, anorexic sufferers are very hard to treat. One school of thought is that they have lost the ability to connect body sensations with appetite...
For an introduction, Pinel’s has some insightful comments (pp 311-312 in Biopsychology)

Key articles:
5 Is dieting a risk factor for development of eating disorders?

Dieting has cropped up throughout the course: we need people to control their intake better to counter obesity. But what are the risks?

**Introductory review:**

**Key research articles**