Sex, Love, & The Neuroscience of Relationships
COMU 131 14715
Spring 2018
Wednesday 12:00-3:00
L/L Commons 216

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Course Description:

What is this thing called love? ~ Cole Porter

Healthy relationships and positive social support are critical components of overall wellness. This course will survey the state-of-science of close relationships, sexual behavior, and the human experience of love and intimacy. Experiencing love is an important aspect of living a meaningful life yet it’s a concept that is challenging to fully understand, embrace, and inhabit. We will navigate a nuanced understanding of love and relationships through an interdisciplinary approach using elements of film, art, music, literature, and philosophy to complement data garnered from developmental psychology and neuroscience. The brain, after all, is considered our most powerful sexual organ and neuroscience can help us to answer the questions of why, who, when, and how we love and develop relationships.

Throughout the course, we will examine the neurobiology of love and relationships across the lifespan while exploring aspects of attraction, attachment, affection, identity, pathology, and neurodiversity. Discussion will be driven by the latest research.
Course Goals
1. The learner will explore the relationship between sexual and interpersonal behaviors and the underlying biological and environmental influences on healthy lifestyles and decision-making.
2. The learner will develop an understanding about the complexity of human relationships and the fundamental emotion of love.
3. The learner will appreciate the diversity of human sexual and intimate experiences and use neuroscience to help explain this variability along the spectrum of wellness to pathology across development.

Required Texts

Class Outline: Each class is 3 hours (180 minutes)
- Class will be roughly divided into five sections; students are expected to attend the entire class in order to receive full participation
  - 60 minutes
    - In-Class Quiz on the Assigned Readings
    - Discussion of Readings
  - 30 minutes
    - Interactive Teaching Session
  - 10 minute break
  - 60 minutes
    - Continue Interactive Teaching
    - Media Viewing
  - 20 minutes
    - Wrap-Up

Pre-Class Assignments
For each class, there will be a range of readings assigned. For most classes, students will be required to read (or watch, or listen to) at least two of the assignments prior to class. Students are also expected to submit a discussion question (pertaining to their readings) to Blackboard prior to each class. These questions will be used to guide in-class dialogue and discourse.

**If one (or more) of the readings is from the required text (The Chemistry Between Us), it's expected that all students will read this**
EVALUATION

- Participation: 40%
  - Based on In-Class Quiz Participation & Discussion Question Submission
- Response Papers: 20% (2 x 10%)
- In-Class Exam: 15%
- Final Project: 25%

SYLLABUS

(subject to change)

Week One

January 17th: Introduction, Overview of Relevant Neurobiology, An Overview of Love & Intimacy

We will explore and deepen our curiosities about emotions, love and intimacy - how do we define such terms and how do relationships contribute to success? We will consider different forms and intensities of love and intimacy and how such phenomena (or lack thereof) relate to happiness and well-being. Aspects and principles of evolutionary and social neuroscience will be discussed. How are we using science to explain the previously unexplainable and understand the power of love and relationships?

What is the role of the media in influencing your notions of sex, love, and relationships?

Assigned Readings: None

In-Class

- Don’t Know What the Angular Gyrus Is? Your Heart Does (The New York Times, 11-8-17)
- Modern Love Podcast 30 - To Fall in Love, Do This
  http://www.wbur.org/modernlove/2016/08/03/to-fall-in-love-do-this-modern-love
- Modern Love Podcast 83 - When Your Greatest Romance is a Friendship
- Startalk Radio Podcast (May 10, 2015) - The Evolution of Love & Sex with Dan Savage at
  www.startalkradio.net
- Ted Talk: What We Don’t Teach Kids About Sex
  https://www.ted.com/talks/sue_jaye_johnson_what_we_don_t_teach_kids_about_sex/discussion
Week Two

January 24th: The Social Brain

We will be discussing the social brain and the neuroscience of human relationships will be introduced. What **chemicals** are involved and why are such chemicals important? The **importance of relationships** will be explored and we'll attempt to further understand why and how humans engage in interpersonal experiences from infancy to adulthood. **How do scientists research love and sex?** **What are social determinants of health?**

Additionally, we will examine relationships in the therapeutic setting - the power of psychotherapy. Can ‘talk therapy’ change the brain?

**Assigned Readings: Everyone Read the Chemistry Between Us & Choose 1 Other**
- Introduction & Chapter 1 from *The Chemistry Between Us*
- *Social - Why Our Brains Are Wired to Connect* by Matthew Lieberman - Part One (p. 3-35)
- *The Neuroscience of Human Relationships*, 2nd Ed. by Louis Cozolino
  - Chapter 24: Healing Relationships

**In-Class**
- How Do We Study Love? [https://theanatomyoflove.com/category/how-do-we-study-love/](https://theanatomyoflove.com/category/how-do-we-study-love/)
- Ted2017: The Secret to Living Longer May Be Your Social Life [https://www.ted.com/talks/susan_pinker_the_secret_to_living_longer_may_be_your_social_life](https://www.ted.com/talks/susan_pinker_the_secret_to_living_longer_may_be_your_social_life)

**For Next Week**
Students will break into groups in preparation to present in class next week. See below for articles.
Week Three

January 31st: The Neuroscience of Love & Emotions - Romantic Love

The brain in love - what does this mean and what does it look like? How is the brain involved in love and sex? This neuroscience introduction will serve as the foundation for more detailed discussions in later course sessions. Can you be addicted to love and sex?

Assigned Readings (*Choose One*)
- OnBeing Podcast with Helen Fisher, Feb 12, 2015 (www.onbeing.org)
- RadioLab Podcast This Is Your Brain On Love, Aug 28, 2007 (www.radiolab.org)

In-Class
- Top 10 Love at First Sight Scenes in Movies at https://www.youtube.com/watch?v=Lrb_hlpzM4c
- Review the Passionate Love Scale (PLS) https://theanatomyoflove.com/relationship-quizzes/the-passionate-love-scale/
- Can You Really Be Addicted to Sex? The Economist, Nov 13, 2017
- Addicted to Love: What is Love Addiction and When Should It Be Treated? Philosophy, Psychiatry, & Psychology, Volume 24, Number 1, March 2017, pp. 77-92
- Students will work in groups to discuss one of the following articles in class:
  - Dorsomedial Prefrontal Cortex Mediates Rapid Evaluations Predicting the Outcome of Romantic Interactions. The Journal of Neuroscience. November 7, 2012. 32(45): 15647-15656
*Written Assignment Due February 14th*
Aphrodisiacs are substances that are thought to increase libido and sex drive when consumed. Choose a substance that has been studied to have alleged aphrodisiac qualities and write a response paper particularly reviewing how it may work neurobiologically and its effectiveness.

Week Four

Feb 7th: Parent - Infant Love & Attachment; Early Adversity

What is so unique about the bond between a parent and a child and how does this initial bond influence other relationships throughout a child’s life? We will depict how positive and loving early relationships have enormous implications on our lifelong well-being and capacity for love and study how raising a child can affect parental neurobiology. Epigenetic principles and the notion of mirror neurons will be introduced and we’ll review the work of Harry Harlow.

We'll discuss attachment disorders, the impact of postpartum depression, and review Spitz’s work on early deprivation.

Assigned Readings
- Chapter 4 from The Chemistry Between Us
- The Science of Success by D. Dobbs (December 2009, The Atlantic)

In-Class
- Review the website for the Center on the Developing Child: [http://developingchild.harvard.edu](http://developingchild.harvard.edu).
- Andrew Solomon’s Ted Talk: Love, No Matter What ([www.ted.com](http://www.ted.com))
- Review the website: [https://acestoohigh.com](https://acestoohigh.com)
Week Five

February 14th: Movie Viewing

During class, we will screen the film *Wounded Places - Confronting Childhood PTSD in America's Shell-Shocked Cities* (Raising of America - Early Childhood and the Future of Our Nation) and reflect upon the themes of trauma and resilience.

Assigned Readings
- **EVERYONE SHOULD WATCH** Nadine Burke Harris’ Ted Talk: How Childhood Trauma Affects Health Across a Lifetime ([www.ted.com](http://www.ted.com))
- **EVERYONE SHOULD READ** Psychoneuroimmunology of Early-Life Stress: The Hidden Wounds of Childhood Trauma? Neuropsychopharmacology Reviews (2017) 42, 99-114
- **Optional:** *The Neuroscience of Human Relationships*, 2nd Edition by Louis Cozolino: Chapter 16: The Impact of Early Stress

*Written Assignment #2 Due March 7th*

**Response Paper on Room**
Think about how Jack may function as an adult - functioning informed by early social deprivation. Review and summarize the neurobiological changes caused by early neglect that may possibly afflict Jack interpersonally when he gets older. What are ways in which this can be addressed in later childhood in the hopes of avoiding such outcomes? How was his relationship with his mother protective?

Week Six

February 21st: Love in Childhood - Friendship & Empathy

Love in Adolescence - Hook-Up Culture

We will examine the shape that love takes during childhood. How do ongoing experiences inform our capacity for human connection and development of friendships? We’ll discuss the importance of modeling in building brain neural networks and how notions of empathy and altruism begin to develop in childhood.

Adolescence is an incredibly complicated period of development neurobiologically. Teenage brain changes will be studied, with special attention paid to how these changes affect interpersonal exchanges and influence impulse control, reward-seeking, arousal, and
desire. How do early romantic relationship contribute to healthy adolescent development and identity formation? The brain's Limbic System plays a central role in this discussion.

**Assigned Readings**
- Chapter 3 from *The Chemistry Between Us**  **REQUIRED**
- *What Teenagers are Learning From Online Porn*, The New York Times Magazine Feb 7, 2018  **REQUIRED**
- Choose One:
  - Uri Hassan’s Ted Talk: This is Your Brain on Communication (www.ted.com)
  - *Welcome To Your Child’s Brain* by S. Aamodt and S. Wang: Chapters 19 & 20 (p 163-178)

**In-Class**
- 10 True Facts About Friendship: What Scientists Have to Say (http://www.huffingtonpost.co.uk/2014/09/04/10-facts-about-friendship_n_5764448.html)
- A Neuroscientist Explains Why We Look at Porn
  http://motherboard.vice.com/read/neuroscientist-david-linden-explains-porn
- ABC News: Millennial Males and Females Discuss ‘Hook-Up’ Culture

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**Week Seven**

**February 28th: Developing an Identity - Gender & Sexuality**

Gender Nonconforming Youth

The neuroscience of gender and sexuality development is controversial, complicated, and enormously interesting. We will examine recent scientific literature and how such data informs how we think about diversity and acceptance.

Focusing on the development of identity during adolescence, we’ll further discuss the development of gender and examine the associated mental health issues that these individuals are at risk for developing.

**Assigned Reading**
- **Required:** Trans, Teen, Homeless: America’s Most Vulnerable Population. Rolling Stone, September 2017
- **Choose Two of the Following:**
  - *The Scientific American Book of Love, Sex, and the Brain*. Chapter 3: His Brain, Her Brain, Gay Brain, and Other Brains


In-Class

- Growing Up Trans (Frontline, 2015):
  http://www.pbs.org/wgbh/frontline/film/growing-up-trans/
- The Mask You Live In (2015)

Week Eight

March 7th: Puberty & the Brain

Effects of Technology & Media

Principles of decision-making and the underlying neurobiology will be examined. How does the developing brain place adolescents at risk for developing substance use and mental health problems? Notions of novelty-seeking and its relationship to Dopamine will be introduced.

We will begin to study how technology influences the development of contemporary romantic relationships, paying attention to the impact of social networking sites on adolescent behaviors and on the development of intimacy among teens. How does the media and technology shape the act of finding a partner in today’s world?

Assigned Reading (CHOOSE THREE)

- The Amazing Teen Brain (June 2015 Scientific American)

In-Class

- Teens & Ethical Romantic Relationships
  https://mcc.gse.harvard.edu/teens-and-ethical-romantic-relationships
- What Makes Us Click? How Online Dating Shapes Our Relationships
  https://www.npr.org/2018/01/02/572259115/what-makes-us-click-how-online-dating-shapes-our-relationships
Week Nine: Spring Recess

*Written Assignment Due March 28th*

Gender Around the Globe

The January 2017 issue of National Geographic magazine reviews the *Gender Revolution: The Shifting Landscape of Gender*. Using this issue as a foundation, think about your notions of gender identity and sexuality and discuss how your own thinking has evolved. Address how different cultures appreciate gender differences and how science can be helpful in further understanding one’s gender experience and reduce stigmatization.

Week Ten

March 21st: Developing Relationships, Monogamy, Pair-Bonding

Romantic relationships through adulthood will be examined. The acts of dating, partnering, and selecting a mate will be explored through the lens of neuroscience. What is the neural basis of attraction and what’s the role of **Testosterone** and **Estrogen** in attraction?

We will continue to take a look at the psychological, biological, and societal influences that drive us to have sex and express love. The neurobiology of pair bonding will be introduced we’ll further investigate **Oxytocin** and **Vasopressin**.

Assigned Reading

- Chapter 2, 5, & 6 from *The Chemistry Between Us*
- Is an Open Marriage a Happier Marriage? New York Times Magazine, May 11, 2017 (This is Optional)

In-Class

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J. Dickerson, MD
Week Eleven

March 28th: Commitment, Losing Love, Loneliness

How can love be sustained over time and what does it take to create a healthy atmosphere for love? What gets in the way? We will learn more about the brain’s reward system, the benefits of sexual activity and orgasm, and the HPA axis.

How does our brain react to loss and loneliness? As we age, it’s inevitable that we experience loss and our capacity to be alone may increase. The phenomena of self-love will be discussed and how this is vital to our own mental wellness and health.

Assigned Reading: (CHOOSE ONE OTHER IN ADDITION TO CH. 7 & 8)

- Chapter 7 & 8 from The Chemistry Between Us
- A Teenager in Solitary Confinement, The New Yorker Dec 4, 2017

In-Class:

- This is What an Orgasm Does To Your Brain https://www.buzzfeed.com/caseygueren/your-brain-on-sex?utm_term=.huwJmNqwB#.fw pvAnGPQ
- Ted Talk: 10 Things You Didn’t Know About Orgasm https://www.ted.com/talks/mary_roach_10_things_you_didn_t_know_about_orgasm
- The Symptom of Depression We Don’t Talk About https://www.huffingtonpost.com/entry/the-symptom-of-depression-we-dont-talk-about_us _59f837f8e4b094db8e76f83e
- Can You Have Love and a Chronic Illness? https://www.rewire.org/pbs/love-chronic-illness/
Week Twelve

April 4th: Hate, Callousness, & Unemotionality

One cannot discuss love without exploring the phenomena of hate. What underlies negativity and hate neurobiologically? Are some born with an innate predisposition for being mean and hateful? The diagnosis of Conduct Disorder and its underlying psychological and neuroscientific constructs will be examined.

Assigned Reading (Choose Two):

- Are Babies Born Good? (January 2013, Smithsonian Magazine)  
  http://www.smithsonianmag.com/science-nature/are-babies-born-good-165443013/

In-Class:

- Inside the Hate Filled Mind of a Mass Murderer (June 2016, The Washington Post)  
- The Reckoning (March 2014, The New Yorker)  
  http://www.newyorker.com/magazine/2014/03/17/the-reckoning
- Real Stories: Psychopaths  
  https://www.youtube.com/watch?v=60vK6Uw9sSE

Week Thirteen

April 11th: Social Cognition & Autism Spectrum Disorders

Social cognition refers to the psychological processes that enable us to take advantage of being part of a social group. What social signals help us to learn about our world and how are such signals mediated by brain processes? We can learn a great deal by observing one another and notions of Theory of Mind and facial recognition/processing will be discussed.

An introduction to autism, a complicated disorder defined by impairments in social relatedness. We'll discuss the genetics and neurobiology theorized to underlie autism and examine intervention strategies.
Assigned Reading (Choose Two):

In-Class:
- *Autism in Love* documentary
- VICE: *Autism Under the Lens*
- Surprising Science Behind Making Friends

Week Fourteen
April 18th: In-Class Quiz

Week Fifteen and Sixteen
April 25th and May 2nd: Presentations

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**Deconstructing Love, Sex, Connection, & Relationships**

Throughout the course we've discussed a range of topics related to the development of relationships and interpersonal connections over the lifespan. Thinking about the topics, what particularly resonated with you? What would you like to learn more about and what do you think the class would be interested in learning more about prior to the semester's end?

Using experiences from your own life or drawing upon relationships, notions of love, or social issues portrayed in your favorite television show or movie, develop a ten minute presentation that investigates the related neurobiology that underlies the social process or behavior you choose.

Please reference at least two scholarly articles during your presentation. Think creatively, class participation is encouraged, and have fun!

**To accompany your presentation, please compose a short one-to-two page paper outlining your topic, why it's important to you and what you believe members of the class should take home from your talk.**
Policies

- How To Contact Us: Use your UVM email account so we can reply (if needed) with confidential information about your work in the class. In most cases, you will get a reply within one business day.
- How We Contact You: Most information will be posted on Blackboard. If we need to contact you individually, we will use your UVM email address. Students are expected to manage their own email accounts so that they can receive messages related to the course.
- Web-based resources: https://bb.uvm.edu/ This is your gateway to the resources for the course, including readings, videos, and other material. Most of your assignments will be posted here. You are expected to check it regularly.

Classroom Environment Expectations

- Students are expected to attend every class, arriving promptly and remaining alert and involved until dismissed by the instructor.
- Faculty and students will promote academic discourse and the free exchange of ideas by listening with civil attention to all individuals.
- Laptop computers and other web-enabled devices: Cell phones cannot be used during class; laptops are permitted unless otherwise specified. We want you to be engaged and participating.
- Absences: As above, attendance is mandatory. Absences will affect your participation grade. (Unless you have a scheduled varsity or club athletic event, religious holiday, illness, or family crisis that is covered by UVM policy as appended below).
Grading & Assessment

**Participation**
Participation is critical for this class. Much of the learning will be derived from in-class discussion, presentations, and viewing of multimedia. We expect students to attend every week, be on-time, and participate in the classroom dialogue about the topics being discussed.

For each class, a short quiz on the assigned readings will be expected to be completed. The quiz questions will help to solidify the readings and will be available prior to class. Only answer the questions that relate to the readings you choose; in class, you will work together with other students to complete the quiz in full. These quizzes will count towards your participation grade for the course.

**Written Assignments**
Two written assignments will be due over the course of the class.

- Paper One due February 14th
- Response Paper Two - A CHOICE: due March 7th or March 28th depending on which paper you choose to write.

**End of Class Exam**
This will be an in-class open-book exam to be taken individually. Details will be discussed in class.

**Final Project**
Details to be discussed in class.

**Written Assignments**
Two papers will be due throughout the course. They should be 4 - 6 pages double-spaced (MLA or APA format, size 12, double spaced, Times New Roman, left heading, 1” margins). The response papers will involve some degree of personal examination using the material from the class and reflection on the prompt provided. Papers should include an introduction, thesis statement, support (with at least 3 references), and conclusion. We will also expect a certain amount of proofreading so that spelling, punctuation, and grammatical errors do not hinder our enjoyment of your writing (use the Writing Center if you need to!).

**Writing Requirements:**

- The paper should have an introductory paragraph and thesis statement to let us know the focus of the paper.
● The subsequent paragraphs should be clearly related to your thesis statement, offering support for your argument. Every paragraph should be easily connected to the previous one.

● The paper should be 4-6 pages with 1" margins and double-spacing. The listing of your bibliography does not count as part of the 4-6 pages.

● Every paper should cite at least 3 sources to support/define your argument. Appropriate sources include textbooks, journal articles, or scientific writing from the media. While blogs, opinion pieces, course lectures, and media samples (TV, movies, music, etc.) are excellent to support your arguments, they do not count toward your citations.

● Citations to materials from the course (textbooks, articles) or otherwise should be included parenthetically with author and page number within your paper, e.g., (Young, 24). Course lectures may be cited but do not count toward your minimum number of references.

● Citations from course and non-course materials should also be listed with full citation information in a reference/bibliography list at the end of your paper. Use APA or MLA style for these citations. If the reference information is not listed, you will not get credit for the citation.

● We strongly suggest that you proofread the paper for grammar, spelling, and readability. If that is not your forte, get help from friends, family, the UVM Writing Center, etc.

Grading Rubric for Writing Assignments:

● 10 points for clear writing (e.g., grammar, punctuation, spelling, clear sentences, no typos) and/or communication of themes

● 10 points for organization (e.g., clear thesis, supporting arguments linked together, conclusion summarizes)

● 10 points for incorporation of resources, references, and ideas/sources from the course (at least 3 citations with reference information required for full credit)

● 10 points for adequately and clearly addressing the assignment prompt in 4-6 pages or in a creative format

● 10 points for creativity in writing, thinking, and presentation of material

● Papers that are turned in late will lose 2 points for each day that they are late. Students requesting an exemption from the late submission policy must present a written note from a school Dean, Academic Advisor, or personal physician justifying the late submission, which will then be considered by the instructor.