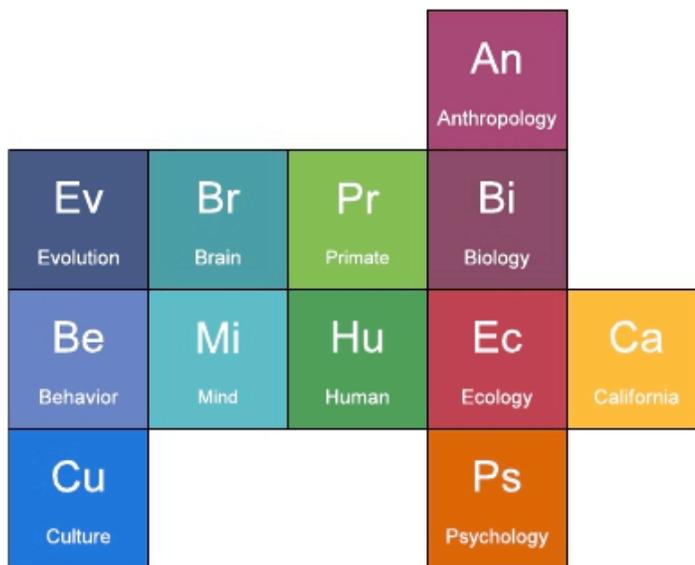


*6th Annual  
California Workshop on  
Evolutionary  
Perspectives of  
Human Behavior*

*May 4<sup>th</sup>-6<sup>th</sup>, 2012*



Conference Overview



- *Program at a Glance*
- *Organizational Team*
- *Conference Sponsors*
- *Registration*
- *Camping*
- *Abstracts*

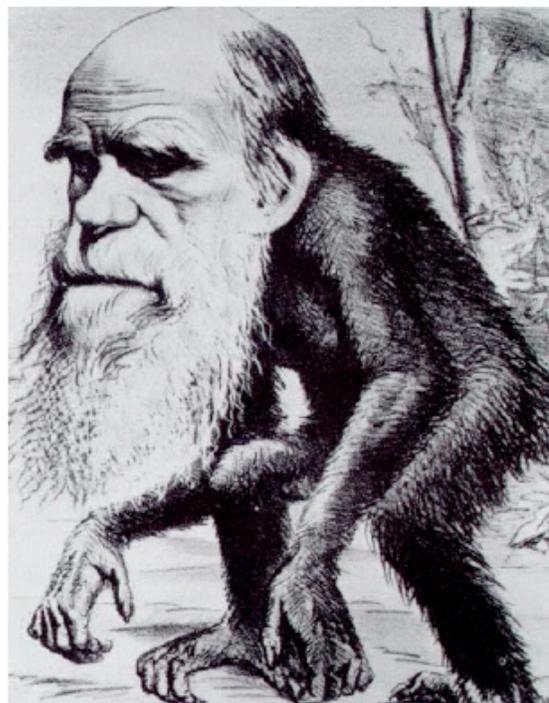


## Aims & Scope

Since the inaugural meeting in 2007, this conference has been guided by a single, unifying goal; to maximize familiarity and opportunity for interaction among the greater California community investigating human behavior from an evolutionary perspective.

This small meeting emphasizes discussion and collegiality, and celebrates our points of convergence and divergence. Collectively, California is home to the largest community of scholars working in this area, and is characterized by a diversity of approaches and areas of expertise.

The program this year includes faculty, postdocs, and graduate students from UCD, UCLA, UCSB, Cal Poly SLO, CSU Fullerton, and Chapman University. We welcome both the familiar and new faces to the 2012 meeting.



# PROGRAM AT A GLANCE

## Schedule of Events

Friday Evening May 4th, 2012  
(Morro Bay Campground BBQ)

6:00pm-10:00pm  
OPENING RECEPTION  
**Morro Bay State Park**

Saturday May 5th, 2012  
(Cal Poly)

**8:00-9:00am** BREAKFAST and  
POSTER SET UP

**9:00-10:00** POSTER SESSION

**10:20-11:00** Nancy Segal,  
Psychology, CSUF “Twin studies  
and how they contribute to  
evolutionary analyses of behavior”

**11:00-11:40** Eric Schniter,  
Economic Science Institute,  
Chapman University, “The  
cultivation of trust with promises,  
apologies, and emotions”

**11:40-12:20** Aaron Blackwell,  
Anthropology, UCSB, “Trade-offs  
between current and future  
immune defense: Naïve and  
memory T-cell populations are  
associated with differential growth  
in an indigenous Amazonian  
population”

**12:20-1:20** LUNCH

**1:20-2:50** EXPERT PANEL  
Cooperation & Prosociality  
Participants: Dan Fessler,  
Anthropology, UCLA; John  
Patton, Anthropology, CSUF;  
John Tooby, Anthropology, UCSB;  
Peter Richerson, Biological  
Sciences, UCD  
Moderator: Clark Barrett  
Anthropology, UCLA

**2:50-3:00** COFFEE BREAK

**3:00-3:40** Ryan Nichols,  
Philosophy, CSFU “Domesticating  
early humans with shame: How Early  
Confucianism leveraged shame  
experience to ‘harmonize society’

**3:40-4:20** Heather Thakar,  
Anthropology, UCSB “Food and  
fertility in prehistoric California:  
A fresh perspective from reproductive/  
nutritional ecology”

**4:20-5:00** David Nolin, UCD  
“Does competition among brothers  
drive marriage delay in Lamalera?”

**5:30-10:00pm**  
DINNER RECEPTION  
Hosts: Ben & Erika Funston-Timms

Sunday Morning May 6th, 2012  
(Cal Poly)

**8:00-9:00AM** BREAKFAST

**9:00-9:40** Steven Gjerstad  
Economic Science Institute,  
Chapman University “Did anyone  
notice the elephant in the room?  
Random variation and selective  
pressure”

**9:40-10:20** Jennifer Hahn-Holbrook  
Psychology, CSU Fullerton  
“The impact of breastfeeding on the  
maternal mind”

**10:20-10:40** COFFEE BREAK

**10:40-11:20** Joe Manson,  
Anthropology, UCLA  
“Reactive and instrumental  
defection: Primary and  
psychopathic traits predict  
contingent economic game-play  
following face-to-face interaction

**11:20-12:00** Bruce Winterhalder,  
Anthropology, UCD, “The population  
ecology of despotism”

**12:00-12:30**  
Steering Meeting for 2013 Workshop

## Organizational Team

*Local Host Extraordinaire!*  
**Stacey Rucas**, Cal Poly

*Co-Lead Coordinators*  
**Ryan Baldini**, UCD  
**Melanie Martin**, UCSB

*Camping Coordinator*  
**Matt Zimmerman**, UCD

*Campus Reps*  
**Shiloh Betterley**, CSUF  
**Jaclyn Harlow**, Cal Poly  
**Justin Myrick**, UCLA  
**Anne Pisor**, UCSB  
**Eric Schniter**, Chapman University



# ACCOMODATIONS

## CAMPING:



This year we will be camping at Morro Bay State Park ([http://www.parks.ca.gov/?page\\_id=594](http://www.parks.ca.gov/?page_id=594)). There is no fee for camping.

The Morro Bay Campground (campsite GOSO) is about a 15 minute drive from the conference site. We have reserved campsites to accommodate 35 people Friday and Saturday night. Parking spots are limited to 11 cars, so please carpool.

Directions: From north and SLO, take Highway 1 north to the Los Osos-Baywood Park offramp. Turn left, go about 1 mile, and turn right into the state park. From south, take Highway 101 north to the Los Osos-Baywood Park offramp. Turn left toward Los Osos and travel about 10 miles to South Bay Blvd. Turn right on South Bay Blvd and go about 3 miles to the park entrance. The campground is about 1 mile after the park entrance.

## HOTEL ACCOMODATIONS:

Group rates (\$69.95 + tax for 2 adults, + \$5 for each additional person, includes breakfast) are available at the Days Inn in San Luis Obispo. The hotel is located 1.5 miles from the conference. Call (805) 549-9911 to make reservations, and mention the “Annual Human Behavioral Evolution Conference.”

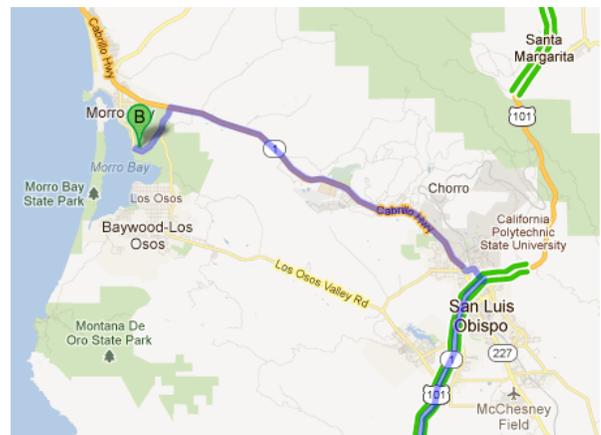
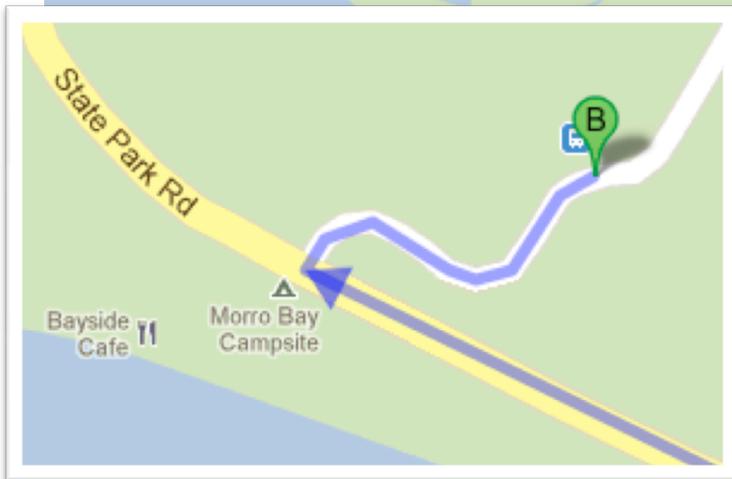
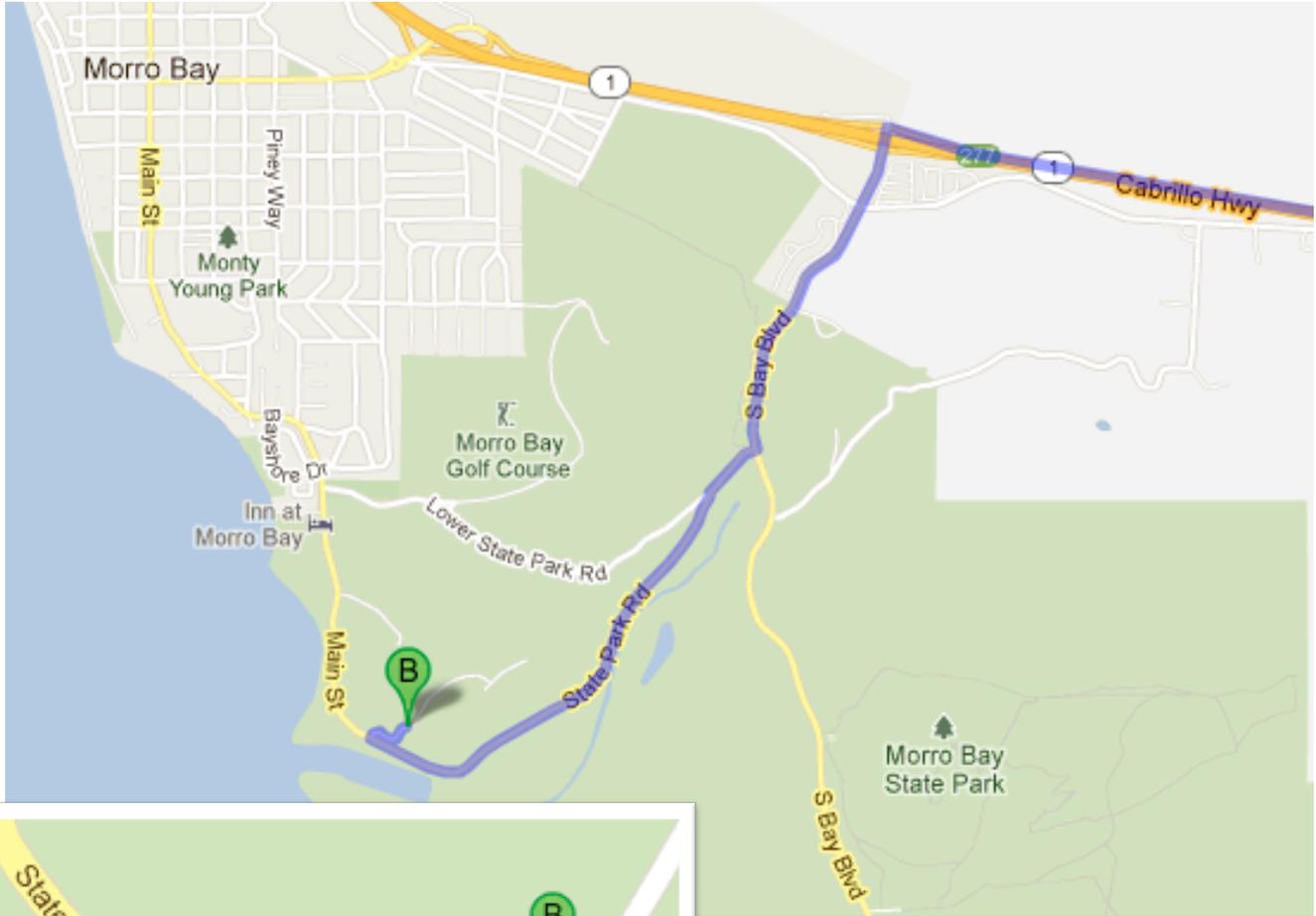
Address: 2050 Garfield St., Garfield and Monterey St., San Luis Obispo, CA, 93401  
<http://www.daysinn.com/hotels/california/san-luis-obispo/days-inn-san-luis-obispo/hotel-overview>

Directions: From north take US-101 S to exist 204 toward Monterey St. Turn left on Buena Vista Ave. and take first right onto Garfield St. From South take US-101 N to exit 204, merge onto Monterey St. and take right onto Garfield St.

# EVENT LOCATIONS

## FRIDAY NIGHT BBQ: MORRO BAY STATE PARK CAMPGROUNDS

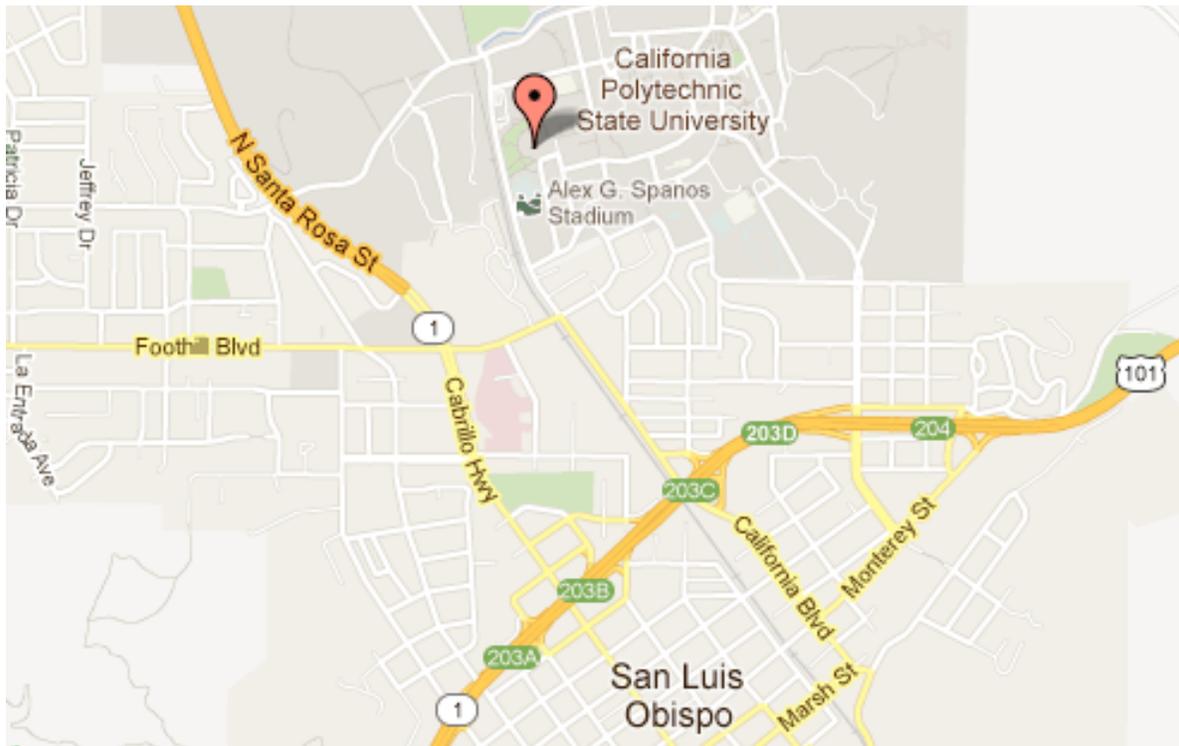
6:00 PM – 10:00 PM. Food & Drink provided. Dress warmly or bring a jacket.



# EVENT LOCATIONS

## SATURDAY & SUNDAY CONFERENCE:

The poster session, talks, and panel will be held at Business Building 3, Rooms 114 and 213  
1 Grand Avenue, San Luis Obispo, CA 93407



# EVENT LOCATIONS

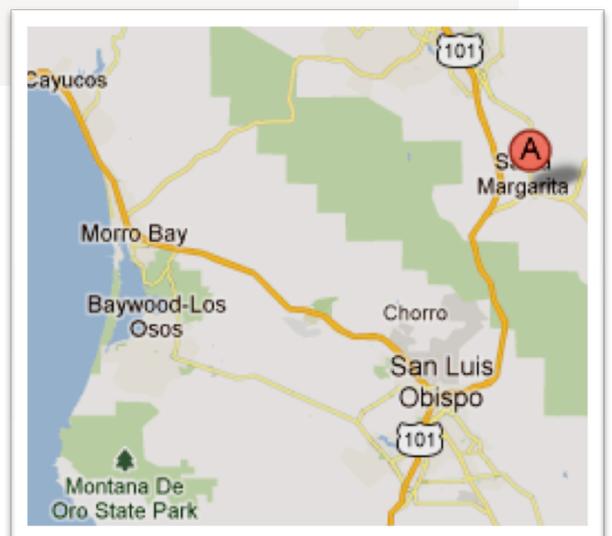
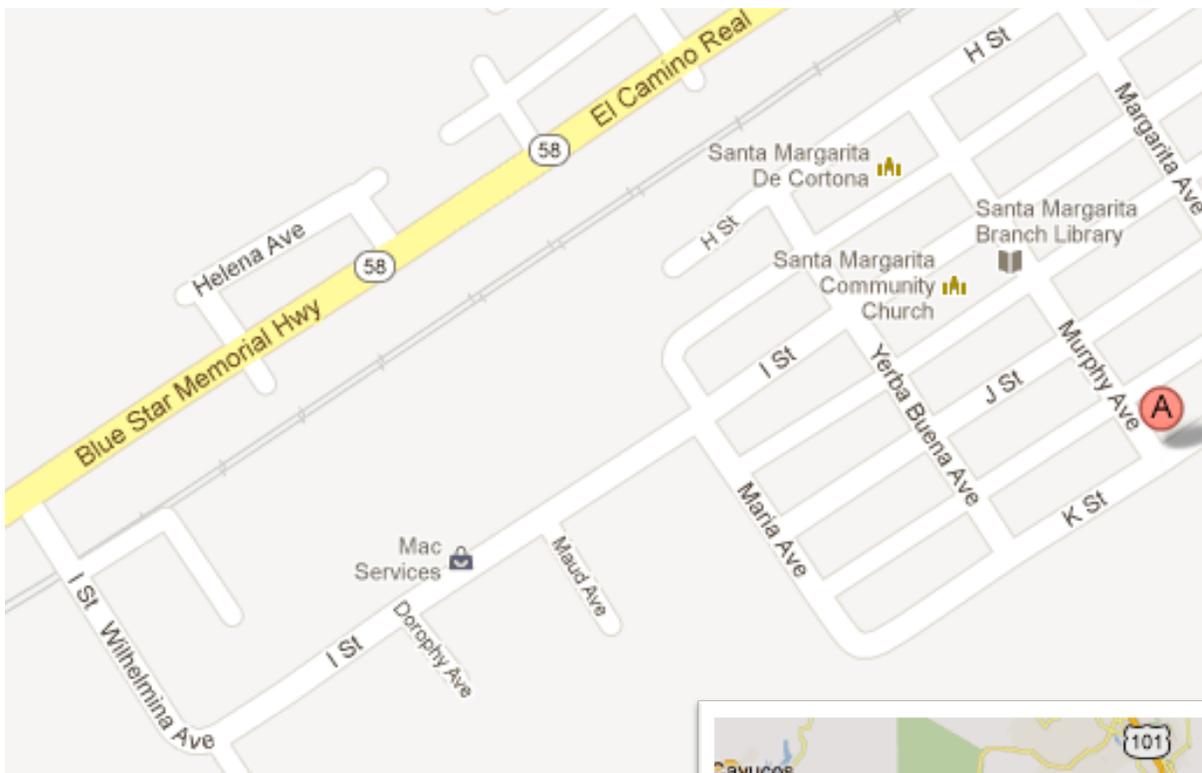
## SATURDAY NIGHT DINNER RECEPTION

HOSTED BY: BEN & ERIKA FUNSTON-TIMMS

5:30 PM – 10:00 PM

Food, drink, and telescopes for star gazing will be provided! Dress warmly or bring a jacket.

Directions: From SLO, take Highway 101 N for 10 minutes and take the Santa Maria exit. After 1 mile, turn right onto Wilhelmina Ave. Follow Wilhelmina as it turns left into 1<sup>st</sup> Street. Take a right onto Murphy St. and follow it until it ends at K Street. Look for the geodesic dome!



The 6th Annual Workshop on Evolutionary Perspectives of Human Behavior has been made possible by the generous contributions of the following organizations:

**CAL POLY** DEPARTMENT  
of **SOCIAL SCIENCES**

**UC DAVIS** DIVISION of **SOCIAL SCIENCES**  
OFFICE of the **DEAN**



UCLA Center for  
Behavior, Evolution, and Culture



Department of Anthropology  
University of California Santa Barbara

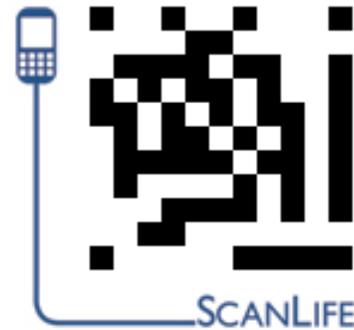


**Anthropology**

Human Behavior & Evolution Society

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The 6<sup>th</sup> Annual California Workshop on Evolutionary Perspective of Human Behavior is proudly supported by the Human Behavior & Evolution Society (HBES).

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<http://www.hbes.com/join/>

*Register for the 24<sup>th</sup> Annual HBES Conference*

*June 13-17, 2012 at the University of New Mexico, Albuquerque, New Mexico*

<http://abs-hbes.unm.edu/>

Human Behavior & Evolution Society

Saturday, May 5, 2012

**Twin studies and how they contribute to evolutionary analyses**

*Nancy Segal, Psychology, CSUF, 10:20-11:00*

Individual differences in behavior have been of great concern to behavioral geneticists whose interests span a wide range of phenotypes. Individual behavioral variation has, however, received less attention from evolutionarily minded investigators. This presentation reviews methods and findings from twin and adoption studies that have addressed selected evolutionary-based hypotheses and questions. Topics include cooperation and competition, bereavement, social closeness and tacit coordination. Suggested research directions will be described.

**Cultivation of trust with promises, apologies, and emotions**

*Eric Schniter, Economic Sciences, Chapman, 11:00-11:40*

Opportunities for mutual gains often exist where previous trust-based exchange histories had not been developed, or where trust had been damaged by unmet expectations. Using trust games, we studied how cheap signals are used to build new trust where it did not previously exist and to rebuild damaged trust following unmet expectations. In these games, trustees made non-binding promises of investment-contingent returns, then investors decided whether to invest, and finally trustees decided how much to return. After an unexpected second game was announced, but before it commenced, trustees could send a one-way message. This design allowed us to observe the endogenous emergence and natural distribution of trust-relevant behaviors and focus on naturally occurring remedial strategies used by promise-breakers and distrusted trustees, their effects on investors, and subsequent outcomes. In Game 1, 16.6% of trustees were distrusted and 18.8% of trusted trustees broke promises. The distrusted trustees used long messages and promises closer to equal splits to encourage extension of trust in Game 2. To restore damaged trust, most promise-breakers used apologies and upgraded promises (though the less guilty were less inclined to). Apologies and upgraded promises successfully persuaded the re-extension of trust (though angrier investors were less likely to be persuaded). 60% of promise-breakers who were re-trusted broke promises again. Repeat promise-breakers reported feeling significantly less guilty after the first game than the Game 1 promise-breakers who kept promises in Game 2. On average, investments in each game paid off for investors and trustees, suggesting that effective use of cheap signals fosters profitable trust-based exchange in these economies.

**Trade-offs between current and future immune defense: Naïve and memory T cell populations are associated with differential growth outcomes in an indigenous Amazonian population.**

*Aaron Blackwell, Anthropology, UCSB, 11:40-12:20*

Immunity involves many different defenses. The defenses in which organisms invest depends not only on the type of threat, but on life history factors such as energy availability and mortality risk, which influence payoffs to investment into present versus future needs. T-cells are a class of white blood cell important for acquired immunity against bacterial, viral, helminthic, and other parasites and pathogens. T-cells begin life as naïve cells waiting for new threats and develop into memory cells once they have encountered an invader. The maintenance of a pool naïve T-lymphocytes can be thought of as investment into defense against unknown or future threats, while memory T-cells protect against threats in the present and recent past. We hypothesized that investment into total lymphocytes would associate with costs to other life history demands, and that maintaining naïve T-cells, in particular, would associate with high costs due to the payment of immediate costs for only potential future benefits, while memory T-cells would be associated with benefits in the present or recent past and therefore show mediated costs. Data were collected on 224 Tsimane children, lowland Bolivian forager-horticulturalists. Using flow cytometry, we counted blood CD4+ and CD8+ T-cells and the proportion of each naïve (CD45RA+) and senescent (CD28-CD57+). Cost was measured as change in age standardized height residuals ( $\Delta$ HSR) from two years of longitudinal data. Controlling for baseline BMI and HSR, total lymphocyte count was negatively associated with  $\Delta$ HSR. When T-cells were divided, naïve were negatively correlated with  $\Delta$ HSR, while memory were positively correlated, controlling for total lymphocytes. Overall, Tsimane naïve CD4 T-cells were low and declined steeply across the lifespan. Results are consistent with naïve cells entailing costs without immediate benefits. Low Tsimane levels of naïve CD4 cells may reflect a trade-off that due to high demands for immunity in the present and/or relatively high mortality risk leading to discounting of future needs.



**Domesticating humans with shame: How Early Confucianism leveraged shame experience to “harmonize society”**

*Ryan Nichols, Philosophy, CSUF, 3:00-3:40*

Imagine you are a nascent cultural leader of a society emerging from a system of social rank based on aggression and force, and ravaged by intra- and inter-tribal violence. How could you facilitate the transition from that system to one in which leaders became attractors rather than aggressors (to use the terms of Gilbert and McGuire 1998), in which rank was dependent on prestige rather than physical dominance? This is just the position in which early Confucians found themselves in Warring States China. This period was one of the bloodiest, war-torn periods China has ever known (Lewis 1990). The hypothesis presented in this paper is that these Confucian authors, redactors and all-around cultural transmitters used natural, evolutionary responses to changes in social status, especially shame, to influence the population in an effort to increase ‘social harmony’, a Confucian term given new life by Hu Jintao. Culturally modifying the bioprogram’s scripts for shame, first early Confucians attempted to design Chinese culture in a way that altered the means of signaling social dominance from physical aggression to prestige. Second, they attempted to leverage their own increasing social status to encode assessments of prestige and social status in terms of moral and intellectual virtue rather than wealth. This interdisciplinary project makes use of research by cross-cultural psychologists (Orotony 1988), evolutionary psychologists (as in Keltner, Haidt and Shiota 2006) and anthropologists (as in Fessler 2004), among others.



**Food and Fertility in Prehistoric California: A fresh perspective from reproductive/nutritional ecology**

*Heather Thakar, Anthropology, UCSB, 3:40-4:20*

High population density is truly an exception to the rules that long governed human society. Research worldwide indicates that throughout most of our existence as a species, humans lived as egalitarian foragers in small, sparsely distributed family groups that moved frequently in response to the seasonal distribution of food resources. The Chumash of the Santa Barbara Channel Region and the Northern Channel Islands in California are a notable example of hunter-gatherers that abandoned this archaic lifestyle without any addition of domesticated plant or animal species to their existing subsistence economy. Defining the factors that facilitated this dramatic shift is central to contextualizing all subsequent cultural developments. In this talk, I discuss accumulating evidence that indicates that a period of significant prehistoric population growth in the Santa Barbara Channel Region was most likely intrinsic, the result of increased fertility and/or reduced mortality within the Chumash community itself. My dissertation research integrates modern reproductive ecology and archaeological models based on ethnographic analogy to provide specific, testable hypotheses for the nature and timing of population growth among hunter-gatherers. I propose that if novel risk-reducing subsistence strategies contributed to increased seasonal resource stability, subtle dietary changes may have contributed significantly to prehistoric population growth in the Santa Barbara Channel Region. My talk will present the theoretical development of this hypothesis and practical archaeological test implications for evaluating seasonal food risk, a significant component of human fertility and mortality.

**Does competition among brothers drive marriage delay in Lamalera?**

*David Nolin, Anthropology, UC Davis, 4:20-5:00*

A peculiar feature of Lamaleran demography is a surprisingly late age of marriage. Furthermore, this trend appears to have increased throughout the 20th Century, peaking at 31 for men and 29 for women married in the 1980s. Past attempts to explain this pattern have shown no clear support for human capital delays, habitat saturation, or brideprice inflation as causes of marriage delay. One recent analysis, however, suggests that competition among brothers may provide part of the explanation. A comparison of parent-son pairs found a negative correlation between parents' age-adjusted fertility and that of their sons, suggesting that sons from larger sibships have reduced fertility. The implications of this finding for marriage delay, including the specific resources brothers may be competing for, are discussed.

Sunday, May 6, 2012

**Did anyone notice the elephant in the room? Random variation and selection**

*Steven Gjerstad, Economic Sciences, Chapman, 9:00-9:40*

Many biological and social processes have the characteristic that random variations – such as genetic mutations or behavioral changes – become the status quo for subsequent generations of genetic expressions or individual behaviors. In extreme cases, when selection pressures are weak, this creates a situation in which genotypes or behaviors look a lot like a random walk. Even when selection pressures are modest, the random components of genetic or behavioral expression can be strong, and the systematic adjustments due to “fitness” can be difficult to detect. Notions that frequently seem at odds with one another – such as hypertrophy and survival of the fittest – can be formulated within a unified context with random variation and variable selection pressure. Time series methods can identify the presence of selection pressure, even when those pressures are weak. In economic contexts weak selection pressure manifests in broad deviations from efficiency, even when simple strategies could be employed to exploit inefficiencies. Such deviations seem likely in biological contexts as well, because of similarities in the underlying adjustment processes.

**The impact of breastfeeding on the maternal mind**

*Jennifer Hahn-Holbrook, Psychology, UCLA, 9:40-10:20*

Lactation is an integral part of the mammalian mothering experience. The onset of lactation after birth precipitates important changes in stress regulation, care giving and offspring protection in many mammalian mothers. Surprisingly little research has investigated whether lactation affects the psychology and behavior of human mothers. In this talk, I will review the current evidence in humans linking lactation to maternal bonding and stress regulation, and present original research relating lactation to maternal aggression and depression. Taken together, these findings suggest that lactation shapes the maternal mind in ways that have important implications for maternal adaptation in the postpartum period. Future directions and methodological considerations in breastfeeding research will also be discussed.

**Reactive and instrumental defection: primary psychopathic traits predict contingent economic game-play following face-to-face interaction**

*Joe Manson, Anthropology, UCLA, 10:40-11:20*

Recent work suggests that psychopathy is a trait continuum in the general population, rather than a discrete dysfunction delimited by clinical diagnosis. This reorientation has important implications for understanding the evolutionary origins of psychopathy. Whereas clinical psychopathy has been theorized as a strategy of unconditional defection,

subclinical psychopathy may predispose individuals toward variable levels of conditional defection. Previous studies of economic game behavior support this supposition, but such work has ignored an important source of discriminant sociality: the relational affordances of particular social partners. In this study, we allowed for naturalistic interaction among participants prior to their playing an unannounced, one-shot prisoner’s dilemma game. When thus given the opportunity to evaluate others for relational potential, those higher on Factor 1 (callous affect, interpersonal manipulation) of the Levenson Self-Report Psychopathy scale showed two forms of contingent defection: one after being interrupted during the conversation, the other after failing to discover common ground with an interlocutor. Both interaction effects support the hypothesis that subclinical primary psychopathy promotes defection when a valuable long-term relationship is unlikely. Derived from a synergy of naturalistic and controlled methods, these data clarify the function and form of psychopathic traits, while illuminating variation in human social strategies.

**The population ecology of despotism**

*Bruce Winterhalder, Anthropology, UC Davis, 11:20-12:00*

In earlier publications we have shown that population in-fill and intensification appear in some cases to induce social integration via political control, exploitation and social stratification, thus promoting the integration and despotism of prehistoric ranked societies. These studies build from the observation that prehistoric settlement of the Northern Channel Islands off the coast of Santa Barbara follows a pattern predicted by the Ideal Free Distribution (IFD). In this talk I extend this work by describing attempts to formulate a despotic variant of the IFD. I show how this work links backward in time to state origin proposals by Robert Carneiro (1970s), and how it moves us forward through analysis of how tax policy in early agrarian states affected the socio-economic status of the peasantry, the income of the despot and oligarchy, and the persistence or failure of the state itself.



*Italics: poster presenter*

## **Chapman University**

### **The role of emotions in self-control**

*Joaquin Minambres and E. Schniter*

Standard economic theories are based on the assumption that consumers choose what they prefer. Why do millions of people struggle daily to avoid temptations – demonstrating temporal inconsistencies in “preferred” behavior? Both the modular perspective of evolutionary psychology and “dual self” models of modern economic theory rationalizes self-control struggles by assuming that the individual has more than one utility function with conflicting interests. We propose a dual utility model of behavior regulation with negative emotions. In our model, temporally inconsistent consumption characterized by compensatory binge and fasting behaviors is explained as a consequence of consumers feeling “effort” after resisting temptations or “regret” after yielding to them. We find that consumers who force their consumption cycles toward greater consistency demonstrate more extreme emotional effects. Likewise, emotionally sophisticated consumers, aware of future emotional states, demonstrate temporally inconsistent consumption cycles. Furthermore, consumers with a deeper memory of past emotional responses demonstrate more stable consumption. Our model explains the dynamic relationships between behavior and emotions, demonstrating the effects of behavior restriction, emotional sophistication, and emotional memory.

### **The role of risk in trust-based investment**

*Timothy Shields, J. Berg, T. Rietz, E. Schniter, and R. Sheremata*

In the absence of enforceable contracts, trust-based investments entail the risk of loss - a reason why people may not trust. Using the trust game, where investors are paired with trustees, we examine effects of risk reduction via minimum-return rules, finding complex effects upon investment and reciprocity. While simple rules mandating minimum reciprocation standards prevent the most egregious trust violations, we find that rules often backfire reducing both trust and trustworthiness. In study 1, rules are exogenously imposed by the institution. In study 2, the investor endogenously selects the rule to be enforced. In study 3, the trustee endogenously selects the rule. Overall, we find that risk reduction does not necessarily increase investment. Under exogenous rules, investment decreases with the introduction of rules and reciprocation falls to the minimum. When endogenously selecting more restrictive rules, investors cue distrust, resulting in lower welfare. On the other hand, by selecting more restrictive rules, trustees encourage trust, resulting in greater welfare. We suggest that investor trust is motivated by both monetary incentives and ability to gain relationship information on which trust is based. Trustees maximally demonstrate trustworthiness when reciprocation is not constrained by rules. Thus, investment risk is necessary for trust and trustworthiness.

## **UC Davis**

### **What evolutionary mechanisms drive cultural change?**

*Bret Beheim and Ryan Baldini*

Cultural change results from a variety of demographic and evolutionary “forces:” e.g., social learning, differential growth rates of ethnic groups, etc. We present a method for quantifying cultural change over time that exactly decomposes change into the effects of births, deaths, immigration, emigration, transmission, and individual change. This *evolutionary decomposition* is based off of recent work by evolutionary demographers. We demonstrate the power of this approach on a simulated population with realistic demographic parameters.

### **Does classroom education take away from learning about the forest? A study examining the link between schooling and traditional ecological knowledge**

*Katie Demps, J. Dougherty, F. Zorondo-Rodriguez, C. Garcia, and V. Reyes-Garcia*

As more government implicated schooling programs have been used to educate indigenous populations, researchers have begun to question the affects of schooling on the acquisition of traditional ecological knowledge (TEK). Previous studies examining the connection between schooling and TEK find mixed conclusions, resulting in a lack of definite understanding of how indigenous communities are changing. Our research project examines a tribal population in south India who collect various products from the surrounding forest and most notably have a rich tradition of honey collecting. To assess how people in these communities learn to collect wild honey, we collected data on both theoretical knowledge as well as practical knowledge, and gathered information related to schooling, such as literacy, attendance and performance on exams for the last 5 years, and the number of years of school completed. For both adults and children we expect to find that a negative relationship exists between schooling and acquisition of TEK. This indicates a tradeoff in time and energy spent acquiring and maintaining one form of knowledge over the other with implications for conservation and biodiversity management by local populations.

**Mindfulness meditation leads to generalized increase in prosociality, but only when performed as a group**

*Karl Frost*

I administered a series of behavioral experiments intended to test Richard Sosis's costly signaling theory of ritual. The theory states that as a signal of group membership, ritual actions will have a positive effect on prosociality, but only with other group members and only when performed as a group. To test this theory, volunteers (n= 350) were randomly divided into control and one of two treatment groups, where the treatment was to participate in a mindfulness meditation, either alone or as a group. All were then asked to play a Common Pool Resource game as a measure of prosociality/altruism. One round was with members of their groups, while the other was with unknown members of the other groups, measuring in-group vs universal prosociality. All plays were anonymous. Agreeing with Sosis's theory, the meditation done privately had no effect on altruism, where the group meditation had a significant positive effect. Contrasting with Sosis's theory, the group meditation benefitted both in-group and universal altruism equally. This result is in line with research that has shown that mindfulness meditation benefits attachment security and that higher levels of attachment security are associated with higher levels of altruism. This suggests that different kinds of religious rituals will have different kinds of effects on prosociality depending on which evolved psychological mechanisms they engage. I hypothesize that these ritual forms would be expected to be of greater benefit through cultural group selection in more sheltered or uniform societies less threatened by free-riders or in societies that also had forms of selective association within larger groups.

**The rise and persistence of Somali piracy: A Z-score model of risk-sensitive decision making**

*Cody Ross*

I use human behavioral ecological (HBE) modeling to explain the *rise* and *persistence* of Somali piracy in the context of illegal fishing pressure. The subsistence strategies of piracy and fishing are conceptualized as having density-dependent return rates; a z-score model of risk sensitive subsistence is then used to assess which of the two strategies should be pursued by a 'rational-actor' given the current illegal fishing pressure and the frequency of pirates and fishermen in the population. The question is posed, once piracy becomes established will it be in the interests of a 'rational-actor' to flip back to the fishing strategy once illegal fishing pressure is reduced? The answer from modeling is 'frequently not'. Moving from this observation, the poster concludes with arguments for pro-active, rather than re-active, policy surrounding issues of piracy and conflict worldwide. This paper seeks to supplement qualitative descriptions for the roots causes of Somali piracy, with explicit mathematical models founded on a rigorous theoretical framework, in order to inform policy in a principled manner.

**It's the sex ratio, stupid! Using evolutionary theory to understand African American problems**

*Kristin Rauch*

Although there is a great deal of scholarship across many disciplines on the issues that African Americans face, the evolutionary approach is rarely taken. This project seeks to add to our understanding of the Black experience in America by applying sexual selection, life history, and sex ratio theories to an integrated analysis of historical and contemporary problems that plague this population. The framework presented here applies an evolutionary perspective that views things like mass incarceration, inner-city violence, racism, discrimination, and single motherhood as 1) interrelated, and 2) potentially adaptive reactions to local conditions. The process is complex, with a variety of interactions and feedback loops reinforcing behavioral patterns. In short, inter-group male mate competition strategies result in excessively and enduringly low sex ratios in African American communities. This, coupled with strong preferences for endogamy among Black women, creates a mating market that selects for predictable trade-offs in mating versus parenting effort allocation among Black men. In turn, low paternal investment strategies contribute to poor offspring outcomes that further skew the African American sex ratio. The policy implications are profound, as government enterprises such as the War on Drugs serve to exacerbate existing problems.

**Explaining sex roles in humans: sex ratio effects in Southwestern Guyana**

*Ryan Schacht*

Recent empirical studies in nonhumans reveal extraordinarily flexible sex roles, both within and between the sexes. Increasingly such variability is explored within humans. Here we contrast two evolutionary theoretical frameworks for exploring variable sex roles, Trivers' theory of parental investment and sexual selection and more recent reformulation of the relationship between sexual selection, parental investment and sex ratios. Using data on men and women from eight Makushi villages in southwestern Guyana with varying sex ratios we show first that fixed stereotypic sex roles are invalid even for a single ethnic community, and second that sex roles vary in predictable ways with adult sex ratio, supporting both the modern reformulation of sexual selection theory and the behavioral ecological tenet that humans exhibit flexible responses to the immediate environmental context.

**CSU Fullerton****Social Norms and Tandem Breastfeeding from an Evolutionary Perspective***Amanda Barnes-Kennedy and E. Pillsworth*

We find norms against tandem breastfeeding (breastfeeding one child while pregnant with another) in nearly all cultures. Although ethnographic records are replete with documentation of such norms, they are less clear on the possible social functions. From an evolutionary perspective, these norms could be a product of a) parent-offspring conflict, b) parent-parent conflict, c) resource competition, or d) disgust over what would be individually-costly behavior. To test among these hypotheses, we will show participants a series of photos of parents in various settings, including photos of mothers who are tandem breastfeeding. Participants will be asked to respond to each photo on different measures. Because each of the hypotheses listed above predicts a different pattern of responses, we hope to shed light on the social functions of norms against tandem breastfeeding in the U.S. In addition, we will collect data concerning individuals' breastfeeding experiences, histories, and attitudes.

**Parent-offspring conflict over potential mate preference: Evidence using a budget allocation model***Shiloh Betterley, A. Goetz, and E. Pillsworth*

Both parents and offspring have evolved mating preferences, which enable them to select mates for themselves, and their offspring, who maximize their inclusive fitness. This study examined potential sources of conflict between parents and their offspring in mate choice decisions. It was hypothesized that individuals mate preferences for themselves would overlap substantially with their mate preferences for their children, but that these preferences would diverge on characteristics indicative of good genes, resources, and parental investment. Specifically, when choosing a mate for themselves, participants should have a higher preference for mates with indicators of good genes compared to when choosing a mate for their offspring, in which case they should have a higher preference for mates with indicators of resources and parental investment. These predictions were tested using a budget allocation model, where 244 students (62 sons, 177 daughters) and 49 parents (21 fathers, 28 mothers) allocated a low budget (20 mate dollars) and a high budget (60 mate dollars) to ten mate characteristics. As predicted, when choice was constrained, offspring allocated a greater percentage of their budget to genetic quality, whereas parents allocated a greater percentage of their budget to resources. However, contrary to the prediction, parents did not allocate a greater percentage of their low budget to parental investment. Further, only one prediction for the interaction of parent sex and offspring sex was supported; Fathers, compared to mothers, considered genetic quality as less of a necessity when choosing an ideal son/daughter-in-law. Differences in individual's mate preferences for themselves and their offspring may reflect evolved psychological mechanisms that function to maximize the genetic quality of one's own mate and the investment quality of their offspring's mate.

**The case of the female orgasm function: Indicating good bonds and retaining sperm***Brooke Gentle*

Nearly 100% of men experience orgasms during sexual intercourse. It is almost certain that this was adaptive in our evolutionary history because it moved sperm to the reproductive track of a female for impregnation to occur. Coital orgasms, however, are less common in women, and consensus on why women experience orgasm is lacking. Different hypotheses have been proposed to explain the existence of female orgasms. The sperm retention hypothesis proposes that orgasms function to retain sperm from genetically high quality men. The bonding hypothesis explains that orgasms function to indicate or strengthen the bond within a couple. Finally, the byproduct hypothesis proposes that there is no adaptive function to female orgasm and that they exist simply as a byproduct of male orgasm. To help distinguish between the hypotheses, this study surveyed 693 women, asking them about their sexual experiences with their past three sexual partners. This study assessed, among other variables, women's orgasm rates, physical attractiveness, sociosexuality, and relationship satisfaction, as well as their partner's physical attractiveness, caring qualities, social dominance, social status, and financial standing. Results suggest that partner physical attractiveness and the bond strength within a couple are significant predictors of female penile vaginal orgasm. Furthermore, this study found that women who have experienced orgasms due to penile vaginal penetration have, on average, relationships with stronger bonds, than do women who have never experienced an orgasm due to penile vaginal penetration. These findings lend support to the sperm retention hypothesis and the hypothesis that orgasms function to indicate that a good bond within a couple is present. It is possible that orgasms function to both retain sperm and indicate that a good bond is present between a woman and her partner. These findings do not support the hypothesis that orgasms function to strengthen the bond within a couple. This study is unique in that it examined characteristics of women's last three sexual partners, whereas previous research only examined women's current partner.

**Male mate guarding, jealousy, and sexual overperception across a partner's ovulatory cycle***Justin Lynn*

Previous research has shown that during the ovulatory phase of the menstrual cycle human females report changes in preference for sexual partners and, if in a committed relationship, greater mate guarding by their current partners. However, there has been little behavioral evidence from males supporting these patterns. Additionally, females have also been shown to underestimate male sexual interest, with the magnitude of males' overperception of female sexual interest predicted by female physical attractiveness. Until now, the relationship between sexual overperception and fertility status has not been addressed. The present study was designed to examine both male and female reports of mate guarding, mate retention tactics, and sexual jealousy in order to determine if there are predictable patterns in association across the menstrual cycle and to compare these findings with self-reports of sexual overperception.

**Sexual strategies in pregnant women***Jaclyn Ross and E. Pillsworth*

Medical research has established that most women experience a lowered sex drive during pregnancy, but a small percentage of women experience a substantial increase in sexual desire. We propose that sexual desire during pregnancy reflects evolved adaptations designed to secure an investing relationship in preparation for parenthood. 112 pregnant women, all in committed relationships, completed an online survey investigating sexual desire and attraction as a function of perceived threats to the relationship and their primary partner's personal and relationship qualities. Sexual desire for a women's primary partner was significantly positively related to perceived threats to the relationship, whereas partner's quality (including sexual attractiveness), woman's SOI, and passion within the relationship were not related to sexual desire. In addition, women's attraction to men *other* than their primary partners was significantly and negatively related to their partner's investing qualities, whereas it was significantly and *positively* related to their partner's sexual attractiveness. Implications for sexual strategies at different phases of the reproductive lifespan will be discussed.

**UC Los Angeles****Changes across the ovulation cycle in women's extra-pair attraction are moderated by third-party ratings of partner attractiveness***Christina Larson, M. Haselton, and E. Pillsworth*

We set out to replicate and extend previous research showing that at high fertility (relative to low fertility) women whose partners lack sexually-attractive traits (which women particularly desire at high fertility) experience heightened attraction to men other than their partner. Thirty-seven naturally cycling women involved in a romantic relationship reported their extra-pair attraction on both high-fertility (confirmed via luteinizing hormone tests) and low-fertility days of their ovulation cycle. Photos of women's partners were taken and rated by research assistants for body and facial attractiveness. As in previous research, fertility-contingent changes in women's extra-pair attraction were moderated by partner attractiveness. The interaction between fertility and third-party ratings of partner body attractiveness was significant,  $F(1, 34) = 5.08$ ,  $p_{dir} = .02$ ; the less attractive the partner's body was rated, the more extra-pair attraction women reported at high relative to low fertility (partial  $r = -.36$ ). The relationship between fertility and ratings of partner facial attractiveness mirrored that of body attractiveness, but was only marginally significant,  $F(1, 34) = 2.46$ ,  $p_{dir} = .08$ , partial  $r = -.26$ . These results compliment previous research and provide evidence that third-parties can perceive factors that impact fertility-dependent changes in women's feelings of extra-pair attraction.

**A second-order adaptation: Progesterone's reduction of cholesterol helps to counterbalance the costs of progesterone-induced immunomodulation***Dorsa Amir*

Cholesterol and progesterone are both vital for pregnancy, yet progesterone has been shown to reduce cholesterol. Why is this so? A key adaptive function of progesterone is to reduce inflammatory immune responses in order to allow the mother's body to tolerate the genetically-dissimilar fetus. However, this change also increases the woman's vulnerability to a variety of pathogens. Pregnancy is an especially dangerous time for infection, as the growing fetus is sensitive to perturbation and may incur major developmental costs. Cholesterol is exploited by many pathogens in such processes as cell entry and replication. Hence, the reduction of available cholesterol serves a defensive function against infection by pathogens. We argue that progesterone's reduction of cholesterol is a critical second-order adaptation that helps compensate for progesterone's reduction in immunity at times of great importance to reproduction

## **UC Santa Barbara**

### **Qualities of Mating Rivals Affect Perception of Relationship Threats**

*Kate Hanson-Sobraske*

An individual whose mate employs a mixed reproductive strategy (MRS) will suffer reduced fitness, thus creating a selective pressure to attend and respond to cues suggesting this event. The likelihood of an individual bearing the cost of their mate's MRS should depend on the qualities of local mating rivals. Therefore, I predict those at an increased likelihood of being harmed by a mate's MRS – women with sexually-accessible rivals and men with physically-attractive rivals – will be particularly vigilant to cues indicating its use. This hypothesis was tested with a pile sort of varying relationship threats. Men with physically attractive rivals perceived ambiguous relationship threats as indicative of their partner's sexual infidelity more so than did men with less attractive rivals. Women with sexually accessible mating rivals doubted their partner's dedication and fidelity to them more so than did women with less accessible rivals.

### **Multi-component signals of strength in male adolescents: are they “back-up displays” or “multiple messages”?**

*Carolyn R. Hodges-Simeon, K. Hanson-Sobraske, J. Griffith, M. Gurven, and S.J. Gaulin*

Sexual selection may have influenced the growth trajectories of human male faces and voices to communicate aspects of male formidability or quality; but do faces and voices offer redundant, “back-up displays” or “multiple messages” (Johnstone 1996)? Here, we examine the relationships among acoustic [fundamental frequency (F0) and formant dispersion (Df)], facial (28 linear dimensions), and competition-relevant somatic (height, adiposity, and strength) characteristics in a sample of Bolivian Tsimane adolescents. Results indicate that male voices (F0 and Df) and faces (jaw and midface) independently predict variance in strength and height, but both are more strongly associated with strength than with height. These findings suggest that individuals attend to facial and vocal characteristics because they signal honest, non-redundant, additive information about formidability to potential competitors or mates.

### **Influence of aquatic resources and subsistence strategy on human milk fatty acid composition: a cross-cultural analysis**

*Melanie A. Martin, T. Dinh, W. Lassek, S.J. Gaulin, R. Evans, M. Gurven, H. Kaplan, A.L. Morrow, J.G. Woo*

Long-chain polyunsaturated fatty acids (LCPUFA), particularly docosahexaenoic acid (DHA, 22:6n-3), are essential to postpartum development of infant neural and visual systems, and are available to nursing infants through maternal milk. Milk LCPUFA content, which varies greatly across populations, is derived from maternal fat stores, diet, and *de novo* synthesis from shorter-chain precursors. Owing to high intake of omega-6 rich foods and low fish intake, women in industrialized populations have generally low percentages of milk LCPUFA and DHA. We found significantly higher percentages of LCPUFA in the milk of women from an Amazonian forager-horticulturalist population (the Tsimane) as compared to a lactational stage-matched sample of Midwestern U.S. women. We also show that women from populations with regular consumption of aquatic resources (marine, lacustrine, riverine) show the highest percentages of milk DHA, irrespective of subsistence economy (i.e., “traditional”, “industrial”). Moreover, mean percentages of milk DHA from non-aquatic consumers are more similar to those of non-human primates than they are to human aquatic consumers. Milk fatty acid composition of women who regularly consume aquatic resources may serve as a better reference standard for comparative studies of maternal and child nutrition, primate milk composition in relation to brain size, and hominin evolution.

### **Two roads diverge in a jungle and men--they took the longer one**

*Emily Miner, M. Gurven, and S.J. Gaulin*

The sex with the higher potential reproductive rate is predicted to compete more strongly for mates, and some of that competition may take the form of elevated search behavior. Thus it has been suggested that men should travel greater distances than do women, particularly during key periods of pair formation. Although this sex difference has been listed as a human universal, surprisingly few systematic studies have addressed it. We present the results of structured interviews with approximately 100 Tsimane adolescents and young adults. The Tsimane are a mildly polygynous group of forager-horticulturalists living in lowland Bolivia. We find that Tsimane men visit more communities and cover greater distances than women, particularly when they are unmarried adolescents. Because of the importance of biparental investment, we expect that the number of dependent offspring will decrease visitation. We expect that older adults will attempt to maximize investment in offspring and grandoffspring. This likely involves a combination strategy of co-residence and visiting communities with a high ratio of dependent offspring to potential care providers.

**The context of rejection: Distinct motivations for social exclusion lead to distinct response patterns**

*Tess Robertson, A. Delton, L. Cosmides, and J. Tooby*

Exclusion from social groups is universally practiced and universally painful, but not all exclusion events are the same.

Qualitatively distinct motivations to exclude by the group present different problems for the excluded person. We hypothesize that these distinct motivations have led to the co-evolution of qualitatively distinct exclusion-response mechanisms, which determine the nature of the exclusion and then generate appropriate responses. In the present research, participants interacted in a face to face group and then were led to believe that they were excluded either because they had undercontributed in a group task due to inability (incompetence) or because they had undercontributed due to undervaluation of the group (free riding). They rated the extent to which they felt various emotions and tactics they might use to regain acceptance in the group. As predicted, distinct motivations for exclusion led to a) distinct patterns of emotion, b) distinct patterns of behavioral tactics, and c) caused predictable links between emotional responses and behavioral tactics.

**Simon Fraser University****Insiders, outsiders, and the adaptability of informal rules to ecological shocks**

*Erik Kimbrough and B. Wilson*

The history of the world is strewn with the remains of societies whose institutions failed to adapt to ecological change, but the determinants of institutional fragility are difficult to identify in the historical record. We report a laboratory experiment that explores the impact of an exogenous ecological shock on the informal rules of property and exchange. We find that geographically induced tribal sentiments, which are unobservable in the historical record, impede adaptation post-shock and that inequality declines as wealth and sociableness increase. Quantitative measures of individual and group sociality account for some of the differences in successful or failed adaptation.

## CAL POLY SLO



**Michael Latner**

Political behavior, electoral systems & representation, cultural evolution and democracy



**Stacey Lynn Rucas**

Sleep, female-female competition and cooperation, friendship, reproductive ecology



**Jason Williams**

Communication, emotion, attention, perception, philosophy of psychology



**Jaclyn Harlow**

HBE, evolution of aggression and violence

## SIMON FRASER U



**Erik Kimbrough** Property rights, ecological dynamics

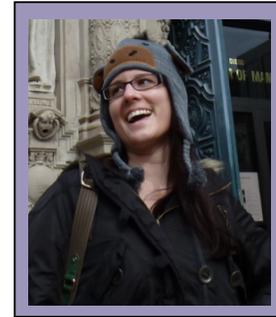
## UC RIVERSIDE



**Jennifer Cullin**

Cultural transmission, nutrition, life history, sexual conflict

## UC IRVINE



**Alia Tirnanic**

Parent-offspring conflict in mating preference, decision making, life history theory

## CHAPMAN UNIVERSITY



**Joaquin Minambres**

Temptation, dual-self, reference-dependent preferences



**Steve Gjerstad**

Experimental economics, general equilibrium theory, market adjustment processes, financial crises



**Eric Schniter**

Life history, contributions of elderly, ageism, trust & information



**Timothy Shields**

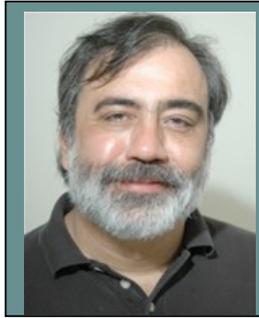
Behavior in face of ambiguity, standards of behavior, commitment devices in conflict

# CSU FULLERTON



**Ryan Nichols**

China, Confucianism, shame, evolutionary psychology, culture



**John Patton**

Alliance and reciprocity, kinship, resource and labor sharing, coalitions, warfare



**Elizabeth Pillsworth**

Mating strategies, long-term mate choice, women's sexual strategies



**Nancy Segal**

Twin studies, childhood & adolescence, behavioral genetics



**Amanda Barnes-Kennedy**

Parent-offspring conflict, parenting, development, medicine, nutrition



**Shiloh Betterley**

Mate choice, parent-offspring conflict, ovulatory cycles, honest signaling



**Evelyn Cholakians**

Reproductive conflict, genomic imprinting, infectious disease, evolutionary medicine, life history, diet



**Farzin Espahani**

HBE, evolutionary psychology, life history, human cooperation



**Brooke Gentle**

Changes across the ovulatory cycle, contrast effects



**Justin Lynn**

Ovulation, mate guarding, sexual jealousy, fertility, attractiveness, sexual overperception



**Giovanni Magginetti**

Sexual strategies, mating, parenting, nutrition



**Jaclyn Ross**

Evolution of sexual strategies, pregnancy, parenting



# UC SANTA BARBARA



**Leda Cosmides**  
Evolutionary psychology,  
cooperative and coalitional  
psychology



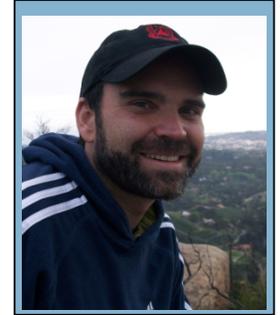
**Mike Gurven**  
Human behavioral ecology,  
aging, cooperation, Tsimane



**James Roney**  
Neuroendocrinology, mate  
choice



**John Tooby**  
Evolutionary psychology,  
behavioral ecology,  
adaptionist approaches to  
neural computation



**Aaron Blackwell**  
Life history, immune  
function, forager-  
horticulturalists, growth,  
parasites



**Andy Delton**  
Cooperation, cognition



**Adrian Jaeggi**  
Socioecology, non-human  
primates, cooperation, food  
sharing, HBE



**Aaron Lukaszewski**  
Human behavioral  
endocrinology, evolutionary  
psychology



**Chris von Rueden**  
Status, leadership, collective  
action



**Carola Flores**  
Archaeology, shellfish  
resources, human impact,  
ancient marine ecosystems



**Eric Fuerstenberg**  
Cognitive ability, parental  
investment, skill acquisition,  
HBE, economic demography



**Carolyn Hodges**  
Sex differences, growth &  
development, adolescence,  
puberty, secondary sexual  
characteristics, the voice



**Sangin Kim**  
Morality, emotion,  
cooperation, conflict,  
punishment, culture, norms,  
life history



**Melanie Martin**  
Nutritional and disease  
ecology, lactation, maternal  
and infant health



**Emily Miner**  
Marriage, visitation,  
cognition

## UC SANTA BARBARA (CONT)



**Anne Pisor**  
Market integration, collective action, senescence



**Tess Robertson**  
Rejection, exclusion, groups, cooperation



**Heather Thakar**  
Hunter-gatherers, subsistence, settlement, food risk, population dynamics



## UC LOS ANGELES



**Clark Barrett** Evolutionary psychology, cognitive development, cross-cultural experiments, Ecuador



**Greg Bryant**  
Evolution of communication, voices, psycholinguistics, evolutionary psychology



**Dan Fessler**  
Emotions, cooperation, aggression, food, disease avoidance, sexuality, morality



**Joe Manson**  
Primate behavioral ecology, social relationships, mate choice, dominance



**Brooke Scelza**  
Human behavioral ecology, maternal and child health, reproductive decision-making



**Jennifer Hahn-Holbrook**  
Parental investment, pregnancy & lactation, hormones, Darwinian medicine, aggression



**Dorsa Amir**  
Progesterone, cholesterol, infection, pregnancy, evolutionary medicine



**Christina Larson**  
Relationships, ovulatory cycle, hormonal contraceptives



**Justin Myrick**  
Life history theory, growth and development, prosociality



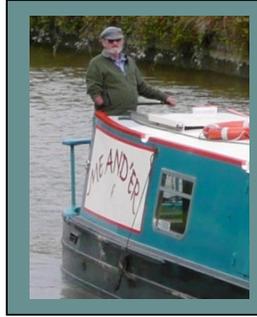
**Jeff Snyder**  
Sexual selection, status, dominance, long-term preferences



**Lesley Newson,**  
Cultural evolution, kin  
influence, reproductive  
behavior, modernity



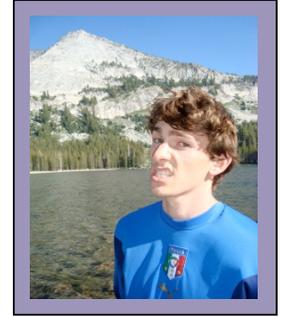
**David Nolin**  
Evolution of cooperation,  
social network analysis,  
evolutionary historical  
demography



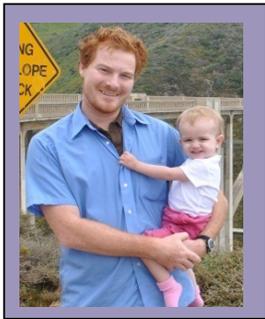
**Pete Richerson** Cultural  
evolution, evolution of  
modernity, cumulative  
technological growth



**Bruce Winterhalder**  
Behavioral ecology, foraging,  
agricultural origins, population  
ecology of early stratified  
societies



**Ryan Baldini**  
Cultural evolution, social  
learning strategies,  
evolutionary modeling



**Bret Beheim**  
East-West diffusion,  
institutional evolution,  
human diversity



**Katie Demps**  
Transmission of local  
knowledge, cultural  
evolution, HBE, south India



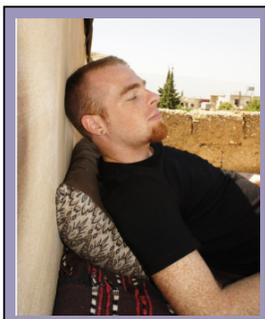
**Karl Frost**  
Religion, ritual, cooperation,  
altruism, conflict, cultural  
evolution



**Nicole Naar**  
Political ecology, resource  
management, coastal  
development



**Kristin Rauch**  
HBE, sexual selection, race,  
sex ratios, parental  
investment



**Cody Ross**  
Behavioral ecology, cultural  
transmission, suicide and  
risk-taking



**Ryan Schacht**  
Mate choice, sexual  
selection, sex ratio, HBE,  
Guyana



## ATTENDEES

Attending, not pictured:

Catherine Burns

Gregory Burns, UC Davis

Tanaya Cook

Angela Garcia, UCSB

Nadia Garcia, CSU Fullerton

Kelly Gildersleeve, UCLA

Yolanda Gomez, CSU Fullerton

Dominick Grossi, CSU Fullerton

Martie Haselton, UCLA

Taylor Ferrari, UCLA

Kyra Kelly

Kathryn Newman, UC Davis

Christopher Peterson, UCLA

Jeremy Pollack, UCLA

Daniel Ramos, CSU Fullerton

Ken Smith, CSU Fullerton

Attendee Pictorial Color Key:

