

David Alejandro Anzola Caicedo

```
>_MONGOSH

> show dbs
< admin      40.00 KiB
  config     36.00 KiB
  local      72.00 KiB
  parking    68.00 KiB
> db
< test
> use parking
< switched to db parking
> use Cursos
< switched to db Cursos
> db.alumno.insert({
  nombre: "Juan Pérez",
  edad: 22,
  carrera: "Estadística"
})
< DeprecationWarning: Collection.insert() is deprecated. Use insertOne, insertMany, or bulkWrite.
< {
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('6929f5cbe1795e7c6d510508')
  }
}
> db.createCollection("cursos")
< { ok: 1 }
> show collections
< alumno
  cursos
> db.cursos.drop()
```

MongoDB Compass - 127.0.0.1:27017/Shell

Connections Edit View Help

Compass

Welcome mongosh: 127.0.0.1:27017 My Queries +

My Queries

Data Modeling

CONNECTIONS (10)

Search connections

127.0.0.1:27017

- admin
- config
- local
- parking
- admin
- cbagronosql.uxxp6sm.mongodb.net
- cbagronosql.uxxp6sm.mongodb.net
- DB**
- Guía Aprendizaje**
- Sistema de Alquiler de Vehículos**
- Sistema Escuela de fútbol
- Sistema para funeralia
- vehiculos

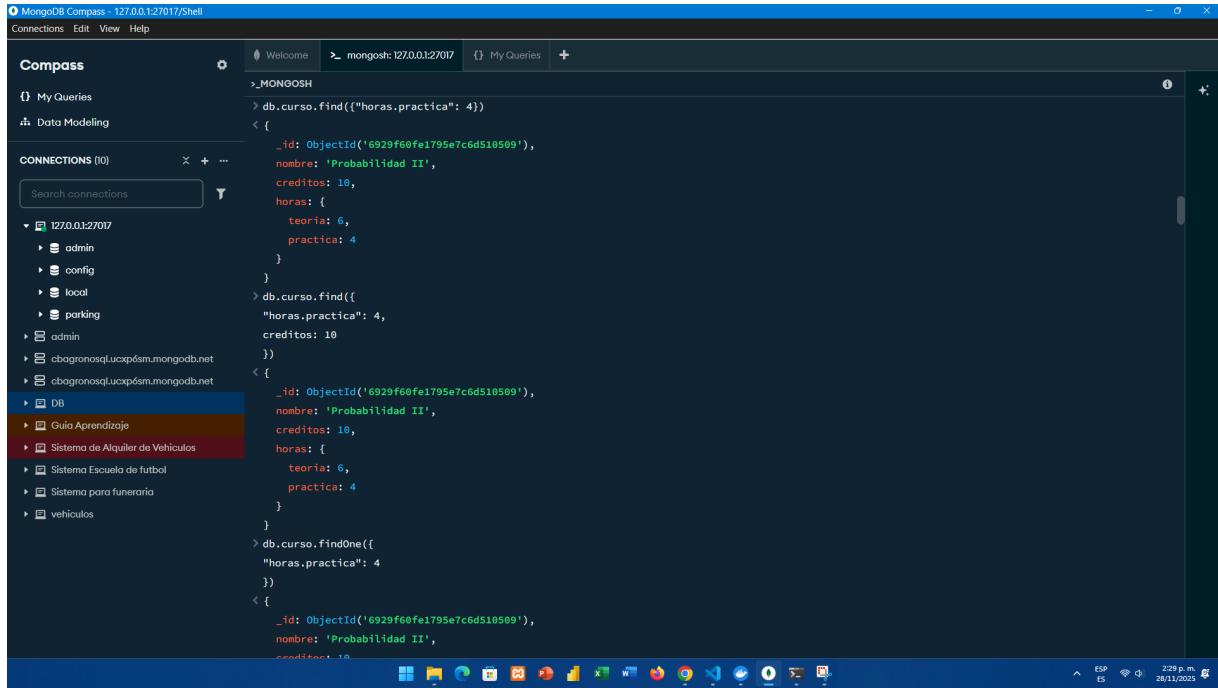
_MONGOSH

```
> show collections
< alumno
  cursos
> db.cursos.drop()
< true
> db.alumno.find()
< [
    {
        _id: ObjectId('6929f5cbe1795e7c6d510508'),
        nombre: 'Juan Pérez',
        edad: 22,
        carrera: 'Estadística'
    }
]
> db.alumno.find().pretty()
< [
    {
        _id: ObjectId('6929f5cbe1795e7c6d510508'),
        nombre: 'Juan Pérez',
        edad: 22,
        carrera: 'Estadística'
    }
]
> db.curso.insert([
    {
        nombre: "Probabilidad II",
        creditos: 10,
        horas: { teoria: 6, practica: 4 }
    },
    {
        nombre: "Estadística Inferencial",
        creditos: 8,
        horas: { teoria: 5, practica: 3 }
    }
])
```

ESP
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238 p. m.
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The screenshot shows the MongoDB Compass interface. The left sidebar lists connections: '127.0.0.1:27017' (selected), 'admin', 'config', 'local', 'parking', 'Sistema Escuela de futbol', 'Sistema para funeralia', and 'vehiculos'. The main area displays a query in the 'mongosh: l27.0.0.1:27017' tab:

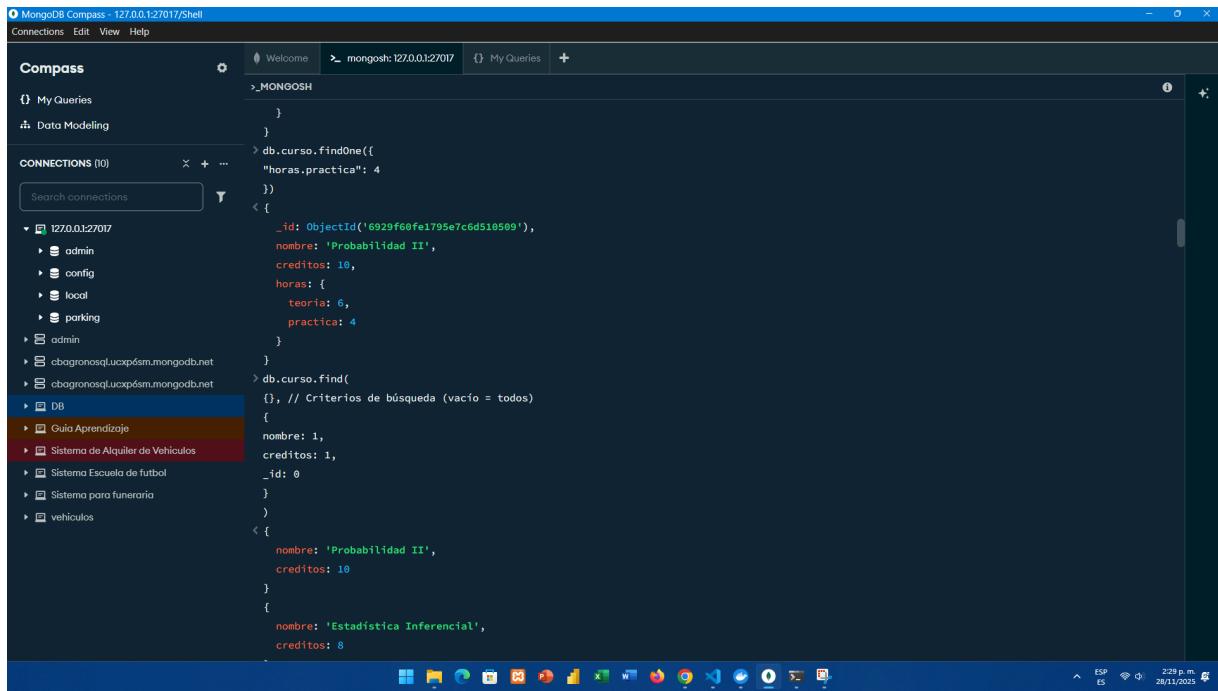
```
>_MONGOSH
{
  nombre: "Estadística Inferencial",
  creditos: 8,
  horas: { teoria: 5, practica: 3 }
}
{
  nombre: "Bases de Datos",
  creditos: 12,
  horas: { teoria: 4, practica: 8 }
}
< {
  acknowledged: true,
  insertedIds: [
    '0': ObjectId('6929f60fe1795e7c6d510509'),
    '1': ObjectId('6929f60fe1795e7c6d51050a'),
    '2': ObjectId('6929f60fe1795e7c6d51050b')
  ]
}
> db.curso.find({nombre: "Probabilidad II"})
< [
  {
    _id: ObjectId('6929f60fe1795e7c6d510509'),
    nombre: 'Probabilidad II',
    creditos: 10,
    horas: {
      teoria: 6,
      practica: 4
    }
  }
]
```



```

>_MONGOSH
> db.curso.find({"horas.practica": 4})
< [
    {
        "_id": ObjectId('6929f60fe1795e7c6d510509'),
        "nombre": "Probabilidad II",
        "creditos": 10,
        "horas": {
            "teoria": 6,
            "practica": 4
        }
    }
]
> db.curso.find({
    "horas.practica": 4,
    "creditos": 10
})
< [
    {
        "_id": ObjectId('6929f60fe1795e7c6d510509'),
        "nombre": "Probabilidad II",
        "creditos": 10,
        "horas": {
            "teoria": 6,
            "practica": 4
        }
    }
]
> db.curso.findOne({
    "horas.practica": 4
})
< {
    "_id": ObjectId('6929f60fe1795e7c6d510509'),
    "nombre": "Probabilidad II",
    "creditos": 10
}

```



```

>_MONGOSH
> db.curso.findOne({
    "horas.practica": 4
})
< {
    "_id": ObjectId('6929f60fe1795e7c6d510509'),
    "nombre": "Probabilidad II",
    "creditos": 10,
    "horas": {
        "teoria": 6,
        "practica": 4
    }
}
> db.curso.find(
    {}, // Criterios de búsqueda (vacío = todos)
    {
        nombre: 1,
        creditos: 1
    }
)
< [
    {
        "_id": 0
    }
]
< {
    "nombre": "Probabilidad II",
    "creditos": 10
}
< {
    "nombre": "Estadística Inferencial",
    "creditos": 8
}

```

```

> db.curso.find().limit(2)
< [
  {
    _id: ObjectId('6929f60fe1795e7c6d510509'),
    nombre: 'Probabilidad II',
    creditos: 10,
    horas: {
      teoria: 6,
      practica: 4
    }
  },
  {
    _id: ObjectId('6929f60fe1795e7c6d51050a'),
    nombre: 'Estadística Inferencial',
    creditos: 8,
    horas: {
      teoria: 5,
      practica: 3
    }
  }
]
> db.curso.count()
< DeprecationWarning: Collection.count() is deprecated. Use countDocuments or estimatedDocumentCount.
< 3
> db.curso.find()
  .sort({creditos: -1})
  .limit(5)
< [
  {
    _id: ObjectId('6929f60fe1795e7c6d51050b'),
    nombre: 'Bases de Datos',
    creditos: 12,
    horas: {
      teoria: 4,
      practica: 8
    }
  }
]

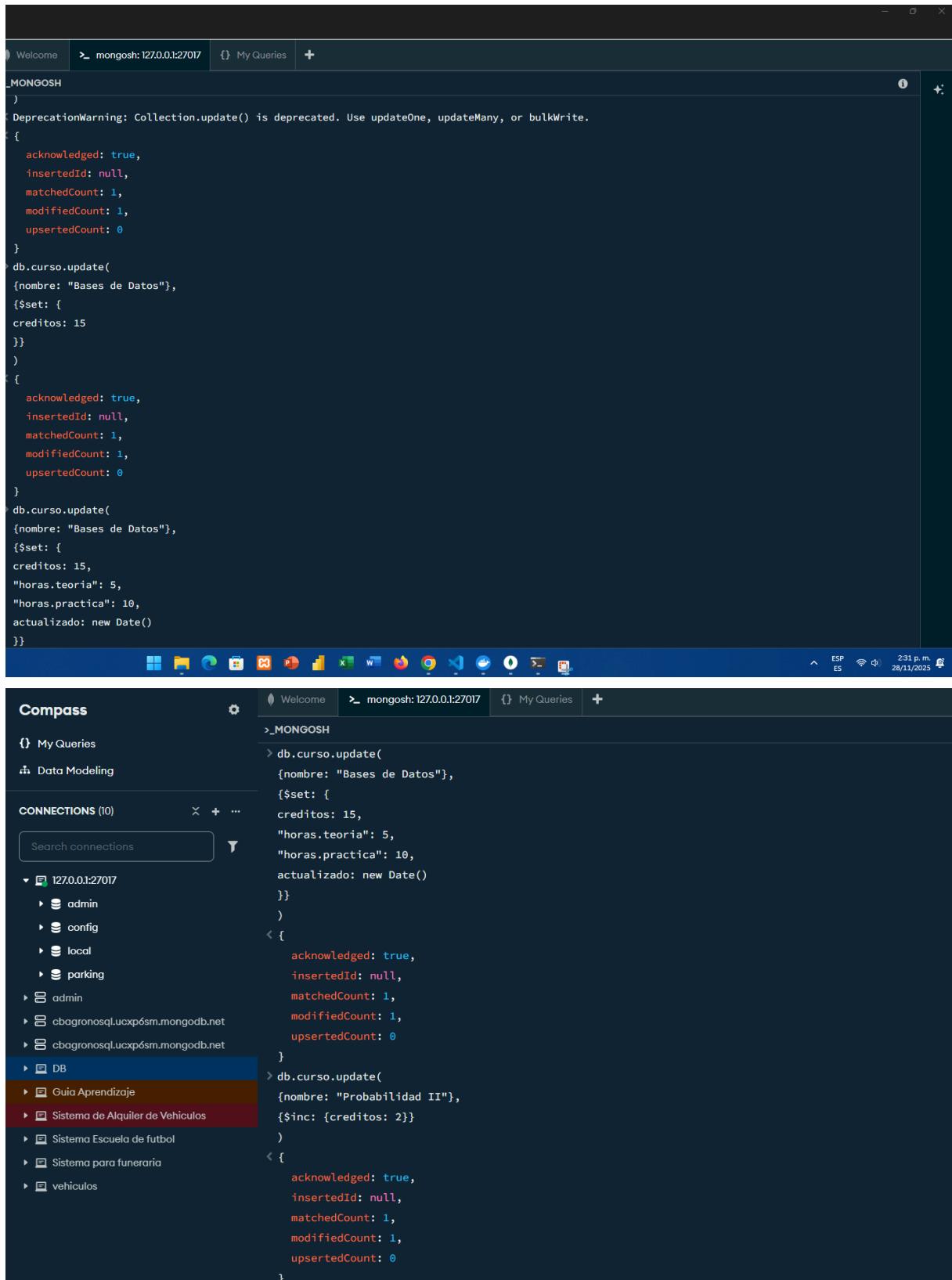
```

```

MongoDB Compass - 127.0.0.1:27017/Shell
Connections Edit View Help
Compass
  My Queries
  Data Modeling
CONNECTIONS (10)
  127.0.0.1:27017
    admin
    config
    local
    parking
    admin
    cbagronosqlucxp6sm.mongodb.net
    cbagronosqlucxp6sm.mongodb.net
    DB
    Guía Aprendizaje
    Sistema de Alquiler de Vehículos
    Sistema Escuela de futbol
    Sistema para funeraria
    vehiculos
  Search connections
>_MONGOSH
  }
  }
  > db.curso.count()
< DeprecationWarning: Collection.count() is deprecated. Use countDocuments or estimatedDocumentCount.
< 3
  > db.curso.find()
    .sort({creditos: -1})
    .limit(5)
    < [
      {
        _id: ObjectId('6929f60fe1795e7c6d51050b'),
        nombre: 'Bases de Datos',
        creditos: 12,
        horas: {
          teoria: 4,
          practica: 8
        }
      },
      {
        _id: ObjectId('6929f60fe1795e7c6d510509'),
        nombre: 'Probabilidad II',
        creditos: 10,
        horas: {
          teoria: 6,
          practica: 4
        }
      },
      {
        _id: ObjectId('6929f60fe1795e7c6d51050a'),
        nombre: 'Estadística Inferencial',
      }
    ]
  
```

```

MongoDB Compass - 127.0.0.1:27017/Shell
Connections Edit View Help
Compass
  My Queries
  Data Modeling
CONNECTIONS (10)
  127.0.0.1:27017
    admin
    config
    local
    parking
    admin
    cbagronosqlucxp6sm.mongodb.net
    cbagronosqlucxp6sm.mongodb.net
    DB
    Guía Aprendizaje
    Sistema de Alquiler de Vehículos
    Sistema Escuela de futbol
    Sistema para funeraria
    vehiculos
  Search connections
>_MONGOSH
  > db.curso.count({
    creditos: {$gt: 8}
  })
  < 2
  > for(var i = 1; i <= 10; i++) {
    db.estudiantes.insert({
      nombre: "Estudiante " + i,
      codigo: 1000 + i,
      promedio: Math.random() * 5
    })
  }
  < [
    {
      acknowledged: true,
      insertedIds: [
        '_0': ObjectId('6929f678e1795e7c6d510515')
      ]
    }
  ]
  > function buscarPorCreditos(min, max) {
    return db.curso.find({
      creditos: {$gt: min, $lte: max}
    }).toArray()
  }
  > db.coleccion.update(
    {criterios_de_seleccion},
    {operacion_de_actualizacion},
    {opciones}
  )
  
```



The screenshot shows two windows side-by-side. The left window is the MongoDB Compass interface, and the right window is a terminal window showing MongoDB shell commands.

MongoDB Compass (Left Window):

- Connections:** Shows a single connection named "127.0.0.1:27017".
- Data Modeling:** Shows a tree view of collections: admin, config, local, parking, and several databases like cbagronosql.ucxpósm.mongodb.net.
- Query History:** Displays the following MongoDB shell command and its execution results:

```

db.curso.update(
  {nombre: "Bases de Datos"}, 
  {$set: {
    creditos: 15,
    "horas.teoria": 5,
    "horas.practica": 10,
    actualizado: new Date()
  }}
)

```

MongoDB Shell (Right Window):

```

>MONGOSH
)
DeprecationWarning: Collection.update() is deprecated. Use updateOne, updateMany, or bulkWrite.
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
db.curso.update(
  {nombre: "Bases de Datos"}, 
  {$set: {
    creditos: 15,
    "horas.teoria": 5,
    "horas.practica": 10,
    actualizado: new Date()
  }}
)
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
db.curso.update(
  {nombre: "Bases de Datos"}, 
  {$set: {
    creditos: 15,
    "horas.teoria": 5,
    "horas.practica": 10,
    actualizado: new Date()
  }}
)

```

```
_MONGOSH
    upsertedCount: 0
}
> db.estudiante.update(
  {codigo: 1001},
  {$mul: {beca: 1.1}}
)
< {
    acknowledged: true,
    insertedId: null,
    matchedCount: 0,
    modifiedCount: 0,
    upsertedCount: 0
}
> db.estudiante.update(
  {codigo: 1001},
  {$max: {notaMaxima: 4.5}}
)
< {
    acknowledged: true,
    insertedId: null,
    matchedCount: 0,
    modifiedCount: 0,
    upsertedCount: 0
}
> db.curso.update(
  {nombre: "Probabilidad II"},
  {$rename: {
    "creditos": "numeroCreditos"
  }}
)
```

The screenshot shows the Compass MongoDB interface. On the left, the 'CONNECTIONS (10)' sidebar lists various databases, with 'DB' currently selected. The main panel displays a command-line interface (mongosh) with the following code:

```
>_MONGOSH
> db.curso.update(
  {nombre: "Probabilidad II"}, 
  {$rename: {
    "creditos": "numeroCreditos"
  }}
)
< {
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
> db.curso.update(
  {nombre: "Probabilidad II"}, 
  {$unset: {
    departamento: ""
  }}
)
< {
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
```

The screenshot shows the MongoDB Compass interface. The top navigation bar includes 'Connections', 'Edit', 'View', and 'Help'. Below the navigation is a 'Compass' sidebar with 'My Queries' and 'Data Modeling' sections, and a 'CONNECTIONS (10)' list containing '127.0.0.1:27017' with sub-options like 'admin', 'config', 'local', 'parking', and 'DB'. The 'DB' option is selected and highlighted in blue. The main area is titled 'MONGOSH' and displays a MongoDB query in the shell:

```
> db.curso.find({  
  creditos: {$lte: 8}  
})  
< [  
  {  
    _id: ObjectId('6929f60fe1795e7c6d51050a'),  
    nombre: 'Estadística Inferencial',  
    creditos: 8,  
    horas: {  
      teoria: 5,  
      practica: 3  
    }  
  },  
  {  
    _id: ObjectId('6929f60fe1795e7c6d51050a'),  
    nombre: "Probabilidad II",  
    creditos: 8,  
    horas: {}  
  },  
  {  
    _id: ObjectId('6929f60fe1795e7c6d51050a'),  
    nombre: 'Estadística Inferencial',  
    creditos: 8,  
    horas: {  
      teoria: 5,  
      practica: 3  
    }  
  },  
  {  
    _id: ObjectId('6929f60fe1795e7c6d51050b'),  
    nombre: 'Bases de Datos',  
    creditos: 15,  
    horas: {  
      teoria: 10,  
      practica: 5  
    }  
  }  
>
```

The screenshot shows the MongoDB Compass interface. The top navigation bar includes 'Connections', 'Edit', 'View', and 'Help'. Below the bar, the 'Compass' sidebar has sections for 'My Queries' and 'Data Modeling'. The 'CONNECTIONS (10)' section lists connections to '127.0.0.1:27017' and other hosts like 'cbagronosql.ucxp6sm.mongodb.net'. A search bar for connections is present. The main area displays a MongoDB shell session titled '>_MONGOSH'. The session shows a query to find documents in the 'curso' collection where the 'creditos' field is less than or equal to 8. The results are two documents from the 'DB' database, both named 'Estadística Inferencial' with 8 credits. The first document has 5 hours of theory and 3 practical sessions. The second document has 15 credits and no hours listed.

```
>_MONGOSH
> db.curso.find({
  creditos: {$lte: 8}
})
< [
  {
    _id: ObjectId('6929f60fe1795e7c6d51050a'),
    nombre: 'Estadística Inferencial',
    creditos: 8,
    horas: {
      teoria: 5,
      practica: 3
    }
  },
  {
    _id: ObjectId('6929f60fe1795e7c6d51050b'),
    nombre: 'Estadística Inferencial',
    creditos: 8,
    horas: []
  }
]
```

```
>_MONGOSH
>
> db.curso.find({
  $and: [
    {"creditos": {$gte: 10}},
    {"horas.practica": {$gte: 4}}
  ]
})
< {
  _id: ObjectId('6929f60fe1795e7c6d51050b'),
  nombre: 'Bases de Datos',
  creditos: 15,
  horas: {
    teoria: 5,
    practica: 10
  },
  actualizado: 2025-11-28T19:23:07.616Z
}
> db.curso.find({
  $or: [
    {"creditos: 10},
    {"creditos: 12}
  ]
})
<
> db.curso.find({
  creditos: {
    $not: {$lte: 8}
  }
})
<
```

The screenshot shows the Compass MongoDB interface. On the left, there's a sidebar with 'Compass' at the top, followed by 'My Queries' and 'Data Modeling'. Below that is a 'CONNECTIONS (10)' section with a search bar. A list of connections is shown, with '127.0.0.1:27017' expanded to show databases like admin, config, local, parking, and several others. One database, 'DB', is highlighted in blue. Another database, 'Guia Aprendizaje', is highlighted in brown. A third database, 'Sistema de Alquiler de Vehiculos', is highlighted in dark red. On the right, the main area shows a query history starting with '_MONGOSH' and a complex update query for the 'curso' collection.

```
>_MONGOSH
<
> db.curso.find({
  temas: {$size: 5}
})
<
> db.curso.find({
  temas: {
    $all: ["Probabilidad", "Estadística"]
  }
})
<
> db.estudiantes.find({
  notas: {
    $elemMatch: {
      $gte: 4.0,
      $lte: 5.0
    }
  }
})
<
> db.curso.update(
  {nombre: "Probabilidad II"},
  {$push: {
    temas: "Distribuciones"
  }}
)
< {
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  unsertedCount: 0
}
```

The screenshot shows the MongoDB Compass interface. On the left, there's a sidebar with 'My Queries' and 'Data Modeling' sections, and a 'CONNECTIONS (10)' panel with a search bar and a list of connections. The main area displays the MONGOSH shell with the following command history:

```
>_MONGOSH
<
> db.curso.update(
  {nombre: "Probabilidad II"}, 
  {$push: {
    temas: "Distribuciones"
  }}
)
< {
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
> db.curso.update(
  {nombre: "Probabilidad II"}, 
  {$pull: {
    temas: "Distribuciones"
  }}
)
< {
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
> db.curso.update(
  {nombre: "Probabilidad II"}, 
  {$addToSet: {temas: "Probabilidad"}}
)
```

The 'CONNECTIONS' panel lists ten connections, with one connection named '127.0.0.1:27017' expanded to show its database and collection structure. The 'DB' section under '127.0.0.1:27017' is highlighted in blue, and the 'Sistema de Alquiler de Vehiculos' database is highlighted in red.

The screenshot shows the Compass MongoDB interface. On the left, there's a sidebar with 'My Queries' and 'Data Modeling' buttons, and a 'CONNECTIONS (10)' section with a search bar and a list of connections. The '127.0.0.1:27017' connection is expanded, showing databases like 'admin', 'config', 'local', 'parking', and several others. One database, 'Guia Aprendizaje', is highlighted with a dark brown background. Another database, 'Sistema de Alquiler de Vehiculos', is also highlighted. The main area is the 'mongosh' shell, displaying a series of MongoDB commands and their results. The commands include creating indexes on 'nombre' and 'creditos' fields, and then querying for a document where the 'descripcion' field contains 'probabilidad estadística'. The resulting document is shown with its '_id' field.

```
>_MONGOSH
|   ...
|   > db.curso.createIndex({nombre: 1})
|   < nombre_1
|   > db.curso.createIndex({
|       creditos: 1,
|       nombre: 1
|   })
|   < creditos_1_nombre_1
|   > db.curso.getIndexes()
|   < [
|       { v: 2, key: { _id: 1 }, name: '_id_' },
|       { v: 2, key: { nombre: 1 }, name: 'nombre_1' },
|       {
|           v: 2,
|           key: { creditos: 1, nombre: 1 },
|           name: 'creditos_1_nombre_1'
|       }
|   ]
|   > db.curso.createIndex({
|       descripcion: "text",
|       nombre: "text"
|   })
|   < descripcion_text_nombre_text
|   > db.curso.find({
|       $text: {
|           $search: "probabilidad estadística"
|       }
|   })
|   < {
|       _id: ObjectId('6929f60fe1795e7c6d51050a'),
|       ...
|   }
|   ...
|   > db.curso.findOne()
|   < {
|       _id: ObjectId('6929f60fe1795e7c6d51050a'),
|       ...
|   }
```

The screenshot shows the Compass MongoDB interface. On the left, the sidebar displays connections (10) and a list of databases: 127.0.0.1:27017, cbagronosql.ucxp6sm.mongodb.net, cbagronosql.ucxp6sm.mongodb.net, DB, Guia Aprendizaje, Sistema de Alquiler de Vehiculos, Sistema Escuela de futbol, Sistema para funeraria, and vehiculos. The 'Sistema de Alquiler de Vehiculos' database is currently selected, highlighted with a dark blue background.

In the main pane, the query bar at the top shows the connection 'Mongosh: 127.0.0.1:27017'. Below it, the query is displayed:

```
>_MONGOSH
> db.curso.find({
  $text: {
    $search: "probabilidad estadística"
  }
})
```

The results of the search are shown as an array of documents:

```
[{
  _id: ObjectId('6929f60fe1795e7c6d51050a'),
  nombre: 'Estadística Inferencial',
  creditos: 8,
  horas: {
    teoria: 5,
    practica: 3
  }
},
{
  _id: ObjectId('6929f60fe1795e7c6d510509'),
  nombre: 'Probabilidad II',
  horas: {
    teoria: 6,
    practica: 4
  },
  activo: true,
  semestre: 4,
  numeroCreditos: 12,
  temas: [
    'Probabilidad'
  ]
}]
```

At the bottom of the results, there is a link labeled 'Cursos >'.